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EDUCATION OF DEAF AND HARD OF HEARING ADULTS IN ESTABLISHED FACILITIES FOR THE NORMALLY HEARING. FINAL REPORT.

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IDAHO STATE UNIV., POCATELLO

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THE PURPOSE OF THE 3-YEAR PROJECT WAS TO DETERMINE WHETHER AN EFFECTIVE SOLUTION TO THE VOCATIONAL PROBLEMS OF THE LIMITED HEARING POPULATIONS COULD BE FOUND THROUGH UTILIZING THE EXISTING EDUCATIONAL FACILITIES, AND, IF SO, HOW IT COULD BE IMPLEMENTED. FORTY-ONE ADULTS WITH WIDELY DIVERGENT EDUCATIONAL BACKGROUNDS, DIFFERING DEGREES OF HEARING IMPAIRMENT, COMPLEX COMMUNICATION PROBLEMS, AND VARYING POTENTIALS FOR EDUCATIONAL AND VOCATIONAL PLACEMENT WERE SERVED IN A PROGRAM FOCUSED ON ENRICHING COMMUNICATIONAL, VOCATIONAL, EDUCATIONAL, AND PERSONAL-SOCIAL EXPERIENCES. PRE AND POST-PROGRAM LEVELS OF FUNCTIONING, RATE OF IMPROVEMENT, AND THE NEED FOR ADDITIONAL HELP WERE EVALUATED. THE NUMBER OF STUDENTS RATED FUNCTIONALLY SATISFACTORY IN EXPRESSIVE COMMUNICATION SKILLS INCREASED 22 PERCENT AND THOSE IN RECEPTIVE SKILLS 13 PERCENT. IN POST-PROJECT EMPLOYMENT, PLACEMENT LEVEL AND APPROPRIATENESS OF OCCUPATION TO INDIVIDUAL ABILITIES IMPROVED. OVERALL RESULTS INDICATED THAT COMPREHENSIVE SUPPORTIVE MEASURES WITHIN EXISTING EDUCATIONAL FACILITIES CAN BE EFFECTIVE IN ASSISTING DEAF AND HARD OF HEARING POPULATIONS. RECOMMENDATIONS INCLUDED ESTABLISHING PROFESSIONAL TRAINING PROGRAMS IN COMPREHENSIVE HABILITATION AND REHABILITATION OF THE DEAF AND HARD OF HEARING, DEVELOPING CONSULTANT POOLS, AND COLLECTING DATA REGARDING PERSONS WITH HEARING PROBLEMS ATTENDING PROGRAMS IN FACILITIES FOR THE NORMAL HEARING. DETAILED DESCRIPTIONS OF PROGRAM IMPLEMENTATION AND COMPONENT STUDIES AND SUGGESTIONS FOR ESTABLISHING SIMILAR PROGRAMS ARE INCLUDED. THE STUDY IS SUMMARIZED IN VT 004 083. (JK)

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Education of Deaf and Hard of Hearing Adults in Established Facilities for the Normally Hearing

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FINAL REPORT

Education of Deaf and Hard of Hearing Adults In Established Facilities for the Normally Hearing

A Study to Determine the Effectiveness of Academic, Technical, or Vocational Preparation of Deaf and Hard of Hearing Individuals in an Existing Educational Facility for Normally Hearing Persons

July 1, 1962-June 30, 1965

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IDAHO STATE UNIVERSITY
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Cover illustration, World I Hear You, original sculpture presented to Miss Mary Switzer, Commissioner, Vocational Rehabilitation Administration by Miss Elnora Cheney, student participant of this Project

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Idaho State School for the Deaf and the Blind

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EDUCATION OF DEAF AND HARD OF HEARING ADULTS IN ESTABLISHED FACILITIES FOR THE NORMALLY HEARING

SUMMARY

Significant Findings for the Rehabilitation Worker

It is impossible to estimate the waste of productivity caused by the failure to develop the potential abilities of the deaf and the hard of hearing populations. Those who come in contact with these people are aware that, not only do many of them fail to make their best contribution to society, but that their satisfactions in life are restricted by poor personal adjustments and ineffective integration into society. Expanding problems of increasing limited hearing populations and the demands of the professions, business, and industry for more highly trained persons must be met if the potential productivity of limited hearing adults is to be made available to society.

Purpose of the Project

The purpose of the project was to determine the effectiveness of a comprehensive trade, technical and academic program in existing educational facilities when certain techniques were introduced to help overcome the problem of impaired communication for the broad spectrum of limited hearing populations: the deaf (manual or oral), the partially hearing, the hard of hearing, and the multiply handicapped.

Specific goals. The specific goals were directed toward the following aspects:

1. achievement of improved communication skills and adaptation of the communication media for the limited hearing students,
2. study of educational adjustment needs and educational placements of the limited hearing students and the effect of the integration of educational programs on the achievement levels of the normally hearing students,
3. development of realistic personal-social orientation of the limited hearing students, their families, and their associates on campus, within the community, and on the job, and the
4. establishment of satisfactory vocational placements accompanied by adequate follow-up programs.

Additional goals were related to the training of specially-oriented personnel and the implementation of similar training programs for the limited hearing students in other existing educational facilities through:

5. provision of laboratory experiences with many types of limited hearing persons for the professional trainees, including an emphasis on the importance of interdisciplinary approach for effective professional preparation, and

6. suggestions for the location, staffing, and financing of subsequent programs for limited hearing adults within existing educational facilities for the normally hearing.

Description of the Facility

Idaho State University is a nationally-accredited institution offering both undergraduate and graduate degrees. The University is divided into four colleges: liberal arts, business administration, education, and pharmacy; two divisions, medical arts, and graduate studies, and the School of Trade and Technical Education. Through these various colleges and divisions, the University offers approximately fifty major undergraduate study areas leading to seven degrees, twenty study areas leading to nine masters' degrees and fourteen programs in the trade and technical fields.

Personnel

Although the desirability of having full-time educators of the deaf as a part of the staff was unquestioned, most of the educational problems and needs of the various limited hearing students were satisfactorily met by regular faculty and staff who were given an orientation to the supportive programs introduced for the deaf and hard of hearing students. The part-time advisors from the Idaho School for the Deaf and Blind were an indispensable adjunct to the Project Staff.

In addition to the members of the staff at the Speech and Hearing Center, a psychiatric social worker was appointed chief technical advisor to the director. As counselor to the students, families, faculty, project staff, and employers, this member of the staff made one of the most important contributions to the overall success of the program.

The interest and cooperation of the directors of the School for Trade and Technical Education and the faculty in the academic, technical, trade, and atypical programs was essential to the carrying out of the Project.

The assistance of the counselors and directors of the local, state, regional, and national Vocational Rehabilitation Agencies was basic to the implementaion of the various aspects of the programs. The Departments of Public Assistance, Employment Security, and Labor also cooperated with the program.

The support of the community organizations and business men provided many additional opportunities for the limited hearing students to participate as accepted members of the normally hearing community.

Special consultants for the various supportive programs were available from out-of-state programs; advisors were selected from the immediate vicinity.

Characteristics of Project Students

Applicants with widely divergent educational backgrounds, differing degrees of hearing impairments, complex communication problems, and varying potentials for educational and vocational placements were accepted. No restrictions were placed on chronological age, sex, type and degree of loss, age at onset, educational achievement, mode of communication, level of language development, or degree of speech functionalism.

Persons with any type of hearing impairment which interferred with the approximation of their educational and vocational potential through post-secondary-level training were considered as qualifying for acceptance in the project program. Past failures on the part of any prospective student were not taken as valid reasons for denying him another opportunity.

The Project served forty-one different students: full-time students--28, affiliates--9, and those who were only evaluated and counselled--4. The total enrollment for the three-year period, computed by adding up the enrollments for each academic year, was sixty-five.

Evaluation Procedures

Evaluation of the supportive programs were made in respect to (1) pre and post-program levels of functioning, (2) rate of improvement, (3) satisfactory functioning level at admission and termination by individual and group scores, and (4) need for additional help at the end of the training programs.

These measures were obtained from (1)batteries of tests given pre and post-program, (2) from ratings assigned by two committees--one knowledgeable and one inexperienced in the problems of limited hearing persons--and (3) by job satisfaction and satisfactoriness as reported by students who had completed their programs and by their employers.

The evaluation of the success of the Project was made in terms of how well all participants had achieved the personal-social adjustment levels and the vocational competence they were individually capable of achieving. Results were interpreted in comparison with normally hearing peers.

Findings and Implications of Supportive Programs

Communication. Severe deficiencies in oral-aural skills did not represent the greatest problem in educational placements. Depressed language and low educational achievement levels of the manual deaf and the impaired auditory discrimination for speech in the hard of hearing with high frequency losses were the aspects which impaired the function of the limited hearing students and called for supportive measures in the areas of communication and education.

The communication measures offered by the Project included: speech therapy, improvement, and conservation, auditory training, speech reading, language improvement, preparatory public speaking, Remedial reading and writing classes were given in the educational adjustment program.

Articulation skills were approaced from the developmental point of view. Completely re-programmed materials were used with the intent of trying to eliminate the practice of errors and the establishment of cumulative well-structured and correctly articulated connected speech. This program for the improvement of speech skills eventually converged with the critical vocabulary and concepts which were being taught in the classroom.

Manual language was learned by the Project Staff and a number of the professional trainees. The manual deaf students, however, were expected to improve their oral skills so that they might find satisfactory and effective post-program integration into the normally hearing and speaking community.

It was postulated that the improvement shown by the severely and profoundly deaf students' oral communication may have been related to the procedures used in speech improvement sessions. In the cases of the manually oriented students, deaf and partially hearing, it was felt that improved motivation to emphasize oral skills may have resulted from being placed in a milieu of normally hearing associates.

Better use of residual hearing through the application of amplification and improved speech reading skills brought about dramatic results in the functionalism of the oral-aural communication of the partially hearing students. This improvement appeared to be related to the recognition of a new role as a liaison between the manually-oriented deaf and the normally hearing community. By the time the partially hearing students had terminated their training, they behaved more like hard of hearing than deaf persons.

Language deficiencies, however, were never satisfactorily adjusted in the manually-oriented deaf nor the partially hearing students so that they were able to compete with normally hearing students in academic or regular technical programs.

Initially, the adventitiously deaf and hard of hearing in adolescence or adulthood seemed unaware of the dangers of continued exposure to high level nise and the importance of re-training for other occupations. The hard of hearing and recently deaf had to be encouraged to use speech reading, training for conservation of speech, and to strive for maximum benefit of residual hearing through the use of amplification and auditory cues.

Education. All of the manual deaf and partially hearing students needed educational adjustment. All modes of communication were used for educational programs and personal-social adjustment procedures.

Supportive measures included special notetakers, taped-typed insturctors' noted, copying classmates' notes, tutoring by friends, instructors, or professional trainees, maximum use of audio-visual aids, manual interpretation, and orientation of the faculty. Special grouping within the class or individual attention given by the instructor to the limited hearing students impeded the progress of the normally hearing students.

The oral deaf who had done somewhat poorly in the high school programs for the normally hearing tended to do well at the post-secondary level so long as they were highly motivated and were provided with adequate supportive measures.

Educational placements for the total project population consisted of two students who attended graduate programs in liberal arts and education, four who were placed in undergraduate liberal arts programs, two in technical training (one in regular and one in restricted courses), four in secretarial training (one in regular and three in restricted courses), nine in regular trade courses, seven in atypical units and three in on-the-job training. One atypical and two on-the-job placements were in addition to the other educatonal placements.

Personal-social orientation. Some of the limited hearing students appeared not to expect much from life because they had never had much. The need for a program geared toward helping them succeed was paramount. Linked to this was the importance of building a new self-image.

Two of the major adjustment problems of the students from all the limited hearing groups in the Project were rejection and dependence. Counseling was urgently needed by families who were unable to accept their limited hearing children. Orientation was necessary for some of the faculty members who initially tended to reject or over-protect the project students.

As the supportive programs were developed, large areas of growth were noted in the students' desire to adapt to the hearing community.

The manually-oriented deaf and the partially hearing students responded well to a developmental-experiential approach to their problem of social immaturity. A program going from the known-to-the-unkown, the simple-to-the-complex, and including an emphasis on "psychological readiness" and the stressing of abilities rather than disabilities appeared to be effective.

The manual deaf and partially hearing students also developed better comprehension of long-term goals, lack of need for the immediacy of reward and a development of an awareness of the opportunities, the choices, and the availability of resources within the normally hearing community. An appreciation of the importance of the opportunity for adequate preparation and the rewards of heterogeneous associations with the normally hearing seemed to instill higher motivation and greater self-respect.

In spite of previous identification with the manual deaf, the partially hearing learned to play a dual role and ultimately contributed to the amalgamation of the manually-oriented limited hearing populations and their normally hearing associates.

Oral deaf and hard of hearing with congenital or adventitious losses in childhood, adolescence, or adulthood, who had been educated with the normally hearing functioned at a level similar to their normally hearing peers.

The adventitiously deaf in adolescence or adulthood seemed less able to accept their hearing impairment than the congenitally deaf.

Many of the partially hearing students, as well as the manual deaf, joined the oral deaf and hard of hearing in dating normally hearing associates. One partially hearing student joined a fraternity; several participated in community and church organizations. All of the project students except three older, married students joined in all of the campus activities.

The project students were well accepted by their normally hearing associates. Many ofthe employers participating in the transitional vocational experience programs took satisfaction in the achievements of the students while they were in training and later showed similar pride in their successful vocational placements. Continued personal-social orientation and job placement follow-up were needed to keep job satisfaction and satisfactoriness at a high level.

Vocational placement. Unrealistic vocational goals were held by nearly all of the project students. The manual deaf and partially hearing evidenced marked vocational immaturity. They were unaware of the opportunities and expectations to be found in the normally hearing community. They needed to learn how to interpret situations less rigidly than their previous sheltered experience had taught them.

The oral deaf and hard of hearing with congenital or adventitious losses needed to select their training programs according to the vocational areas which would be compatible with their particular type of hearing impairment.

Vocational placements included one professional (teaching), one semiprofessional (sculpting), six clerical placements, nine skilled occupations (printing, photography, electricity, upholstery, body and fender), and one unskilled occupation (greenhouse worker).

Compared with pre-project placements, unskilled and semi-skilled occupations lost one person each while skilled occupations gained eight. Agriculture lost ten and service occupations lost eight. Clerical placements gained six, and semi-professional and professional each gained one.

Not only was the vocational placement level improved but the type of occupation for each individual was more appropriate insofar as abilities and disabilities were concerned than the pre-project placements had been.

All of the students who were placed at the end of their training programs expressed a high level of job satisfaction. All employers found the work of the limited hearing employees extremely satisfactory. Several employers stated that the limited hearing employees were equal to or superior to normally hearing persons who occupied similar placements.

Preparation of Professional Trainees

The Project contributed to several aspects of the professional training program at Idaho State University. An opportunity to observe and to participate in supportive measures designed to help persons with various types and degrees of limited hearing to more nearly approximate their educational, personal-social and vocational potential was provided. The need for a multidisciplinary approach to the evaluation and training procedures was dramatically demonstrated to over one hundred majors in audiology and speech pathology as well as to students from the departments of education, special education, psychology, business administration, and testing and counseling.

Experiential learning was as effective a teaching method for the professional trainees as it was for the limited hearing students in the Project.

Some Problems Pertinent to the Education of Limited Hearing Adults

Problems faced by administrators. Because of the lack of sufficient educational facilities for post-secondary training programs and because schools of trade and technical education are judged by the quality of their graduates, great care has to be exercised in the selection of limited hearing individuals who are to fill some of the regular program openings.

Administrators find it unjustifiable and rehabilitation counselors, families, and other agencies find it unsatisfactory and expensive to place students in training programs in which they fail. The result is unemployment and underemployment for the individual and closed doors to prospective students with impaired hearing.

Supportive measures make it possible for many limited hearing adults to participate successfully in the regular curricula. Atypical units may be set up as adjuncts to the existing programs and the participation of other specialized educational resources in the community are useful in solving the problems of the exceptionally talented, the multiply handicapped, or the students with little educational preparation. This approach permits educational and vocational placement based on abilities rather than by disabilities only.

Multi-tract and conjoint programs, evening curricula, and special lecture series can offer additional opportunities and advantageous use of existing facilities for full-time and part-time limited hearing students. These appoaches would be especially useful in providing further education for the manual deaf since the Project demonstrated that not more than 15% of a regular trade class should consist of manually-oriented deaf students. Any number of the oral deaf and hard of hearing who have competent levels of language development and adequate educational backgrounds may be integrated with normally hearing students providing appropriate supportive programs are available to them.

Problems faced by counselors. The experiences of the limited hearing persons who had attempted to improve their vocational placements by additional training previous to their entrance into the Project demonstrated that what may be educationally feasible for a limited hearing person may not be vocationally feasible for him. Fourteen per cent of the project students initially chose training areas which were unsuitable either educationally or vocationally.

The usual evaluation procedures and staffing of cases need to be followed by supportive measures related to each student's aptitudes and psychological readiness. Preparatory courses, exploratory skills units, atypical units, and transitional vocational experience are effective ways of orienting the limited hearing students and for providing observational opportunities for staff members before recommendations for educational placements are made.

Results of the Study

The results of the Demonstration Project at Idaho State University in cooperation with the Vocational Rehabilitation Administration indicated that comprehensive supportive measures within existing educational facilities for the normally hearing can provide an effective means of overcoming the waste of productivity caused by the failure of all types of deaf and hard of hearing populations to develop their potential abilities in the areas of communication, education, personal-social orientation, and vocational placement.

The availability of the existing facilities for the normally hearing population offers a broad spectrum of training programs for the limited hearing if adequate supportive measures are provided. Since the majority of vocational placements lie within the normally hearing community, effective orientation and successful experiences on the part of both limited and normally hearing persons appear to be essential if good personal-social adjustment and satisfactory vocational placements are to be effected.

Recommendations

Supportive programs. Supportive programs for limited hearing adults need to be established in numerous existing educational facilities for normally hearing students in rural, semi-rural, and metropolitan areas.

Professional traineeships. Professional traineeships need to be provided for persons from various disciplines related to the rehabilitation of limited hearing persons for multidisciplinary training in comprehensive habilitation and rehabilitation of the deaf, partially hearing, hard of hearing, multiply handicapped with impaired hearing, and persons with non-organic hearing losses.

National and regional consultants. National and regional pools of consultants, familiar with the problems of limited hearing adults attending existing educational facilities for the normally hearing should be made available to institutions wishing to establish such programs within their own facilities.

Data collection. Careful collection of comprehensive data concerning the deaf and hard of hearing persons attending various programs in existing facilities for the normally hearing should be made by a central office. Such a procedure would provide reliable information concerning the most effective means of providing special training opportunities or formal educational programs for the vast populations of the limited hearing persons.

FOREWORD

Everything must have a beginning and final decisions must be based on many small bits of knowledge, some of which were unknown before investigation and some of which were suspected but not substantiated. This study was one of those preliminary investigations that produced some of the knowledge which will help educators of the deaf and legislators to formulate a true and lasting decision in regard to a sound course to take to provide vocational education for young deaf adults. The lessons learned here need not be repeated but heeded and used to good advantage.

McCay Vernon, Ph.D., research psychologist at the Institute for Psychomatic and Psychiatric Research and Training, commented upon the assistance needed by both deaf and hard of hearing students:

> This Project's successful demonstration of an effective means of improving the vocational-technical and academic education of persons who are deaf and severely hearing impaired provides an excellent prototypic model for other similar programs. The critical need for such programs is clearly stated in the Babbage Report and has long been well known by those in the area of deafness. Among the more salient findings was the fact that many of the services thought to be necessary only for the deaf student in an existing facility for the normally hearing are also essential for the success of many hard-of-hearing students in the same setting.

The importance of good speech and language was described by Ruth Clark, Ph.D., professor of speech, University of Denver:

> The ability to talk and use language sets the human apart from, and above, other animals. However, many human beings, because of limited hearing, have not had the opportunity and help to overcome their impaired communication. Therefore, they do not live up to their potentialities. The present study fulfills its purpose admirably by determining the effectiveness of introducing certain techniques in established academic programs to help hearing impaired individuals. In a democracy all persons should have educational opportunity to attain vocational and social competency within their capacity. The findings of this study point out ways these opportunities can be given hearing impaired individuals. It is a solid piece of work, a land mark in the area, and further study along this line is indicated.

As a person well known for her interest in the hard of hearing and partially hearing individuals, Mrs. Marion Down, director of clinical audiology, University of Colorado Medical School, wrote:

> To anyone whose concern for the welfare of the limited hearing individuals is more than superficial, the report of the Demonstration Project of Idaho State University should have deep significance. Its import lies not in the facts and figures contained

> in the report--although these speak for themselves--but in the lives of some 41 individuals who have attained a fulfillment that was not open to them without the project. The fact that it has been possible to achieve this enrichment in a small segment of the limited hearing population should affect the direction of thinking--and of policy--of those in strategic educational positions in this country.
>
> The demonstration project has effectively answered the question: "Are we accomplishing everything within our means and facilities for the good of the limited hearing individual in this country?" The answer, of course, is that we are not even beginning to use facilities which are already in existence, and whose use, modified to the specific needs of the limited hearing, would involve a minimum financial burden and involvement of personnel. The project has demonstrated the practicability of such utilization.
>
> The effectiveness of the supportive programs in enhancing the lives of the participants is, beyond question, of a degree that cannot be measured in terms of financial outlay. I would fervently hope that this report would serve as a model and guide for wide-spread programs of its kind throughout the country.

One study usually indicates the needs for others. This study was a significant step forward. The experiences of project personnel and students were as interesting as the results. Each student presented a different problem.

Dr. Marshall Hester, former superintendent of the New Mexico School for the Deaf made the following statement in a letter dated February 26, 1965:

In spite of the fact that there is considerable opinion to the effect that a program, such as the one at Idaho State University, is not adequate to the needs of the lower half of the young adult deaf population, I think the project should be continued with a larger number of deaf people. We need to have a thorough, long-time strenuous attempt to give these less well-qualified deaf people the additional training they so badly need in a setting with hearing people. It needs to be done with a sufficiently long time to give us some definitive answers to the question "can post secondary vocational and other training for deaf people be best carried on in a setting organized for hearing people?"

Professional educators of the deaf and deaf people throughout the nation are indebted to the project staff and the administrator and faculty of Idaho State University and its School of Trade and Technical Education for their enthusiasm, dilligence and willingness to participate in teaching experiences strange to them. All of the student participants in this project who completed the courses of study prescribed for them under the supervision of these dedicated educators were benefited immeasurably.

Edward W. Reay
Superintendent
Idaho School for the Deaf and Blind

March, 1967

ACKNOWLEDGMENTS

The emergence of the idea for a demonstration of the supportive measures needed to make an existing educational facility functionally satisfactory for deaf and hard of hearing students developed during a workshop jointly sponsored by the National Association of Hearing and Speech Agencies and the Vocational Rehabilitation Administration. Alan B. Jones, chairman of one of the groups, and Stephen P. Quigley, site visitor from the Vocational Rehabilitation Administration, stimulated the thinking of the Idahoans and confirmed the appropriateness of carrying out such a study at Idaho State University.

Mr. Edward Reay, superintendent of the Idaho State School for the Deaf and Blind, and his Staff supported the efforts of the Administrators, Faculty, and Project Staff to establish guidelines for the development of supportive measures which would enable the deaf (manual or oral), the partially hearing, the hard of hearing, and the multiply handicapped with hearing losses to attend successfully academic, technical, vocational, or atypical curricula for normally hearing students.

The Project Consultants, Mrs. Marion Downs, Drs. Marshall Hester, McCay Vernon, Ruth M. Clark, Philip N. Hood, and William Jinne were generous with their time. The Project profited greatly from their guidance and support.

Advisors to the Project Staff were the educators of the deaf, Allen Hayek, Gary Blake, and Stanford Rupert. Kenneth O. Myers served as advisor in employer relations. These persons gave abundantly of their ideas and experience.

The local, state, regional and national vocational rehabilitation administration counselors and directors gave unstinting support to the students and to the program.

Special recognition for their interest, effort, and understanding is deserved by Mr. Jack Rucker and Mr. Roy Christenson, directors of the School of Trade and Technical Education, and by Mr. John W. Harris, chief technical consultant and Mrs. Julia Norman, administrative assistant.

To all of the Limited Hearing Students who were patient with their Normally Hearing Associates until the latter learned to understand their particular problems, I should like to dedicate this Report.

Gwenyth R. Vaughn, Ph.D.
Project Director

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INTRODUCTION

Expanding Problems Demand Adequate Solutions

It is impossible to estimate the waste of productivity caused by the failure to develop the potential abilities of the deaf and the hard of hearing populations. Those who come in contact with these people are aware that, not only do many of them fail to make their best contribution to society, but that their satisfactions in life are restricted by poor personal adjustments and ineffective integration into society. The truth of this situation is most evident in the deaf populations, but there is also a vast area of unidentified needs among the hard of hearing which deserves equal consideration.

Hearing impaired adults who wish to avail themselves of either special training opportunities or formal educational programs are faced with multi-faceted problems related to inferior communication skills, inadequate educational background, and unsatisfactory personal-social orientation. Developmental lags in these areas make it difficult to function satisfactorily in training programs for normally hearing students. The concurrent lack of adequate or appropriate preparation often leads to the unemployment or underemployment associated with limited hearing.

Expanding problems demand adequate solutions if the potential productivity of limited hearing adults is to be made available to society. These measures must be based on a differential approach to the widely dissimilar problems relating to the functionalism of the hearing impaired.

Functional Classifications of the Limited Hearing Populations

The label of deafness has often been used indiscriminately to categorize rather than differentiate. The term, limited hearing, used in the general sense to include those at one end of the spectrum with profound deafness and those at the other extreme representing the mildly hard of hearing, permits a somewhat more facile means of pointing out the widely divergent problems of a highly heterogeneous population. The following classification is based on the functional aspects associated with educational and vocational placements.

The Deaf

The prelingually deaf. The prelingually deaf who do not develop adequate oral communication skills tend to remain in deaf communities. The vocational training which they have received in the past from the schools for the deaf or in public schools has provided insufficient vocational preparation for the majority of these students. The problem of where to offer additional training has become a serious one since existing facilities for post-secondary-age education are designed for normally hearing students.

Their programs have not been oriented toward limited hearing students, especially the prelingually deaf who have severe deficiencies in speech and language skills.

Although there is some indication that there may be legislation to establish regional vocational schools for the deaf, IT MAY PROVE TO BE PROHIBITIVELY EXPENSIVE TO ESTABLISH A SUFFICIENT NUMBER OF SPECIAL EDUCATIONAL FACILITIES EXCLUSIVELY FOR DEAF STUDENTS. These proposed facilities would be in addition to Gallaudet College which is presently the only college for the deaf and the newly established National Technical Institute for the Deaf which is to undertake vocational training.

The postlingually deaf from childhood. Although the postlingually deaf population whose losses occurred in early childhood usually develops speech and language superior to the majority of the prelingually deaf, this group also encounters serious difficulties in competing with normally hearing students in non-specialized educational settings.

Training programs entailing an advanced degree of language comprehension have generally been completed only by the few enterprising oral deaf, or those with enterprising families, who have been able to institute comprehensive supportive measures to overcome the disparities caused by profound hearing losses.

Since the majority of vocational placements are to be found within the normally hearing community, there seems to be little doubt that a way of providing satisfactory educational opportunities for the oral limited hearing populations within existing facilities for normally hearing students is crucial. In any other form, it would be difficult to offer them the range of academic, technical, and vocational preparation equivalent to that available to normally hearing students.

The personal-social identification with the nonoral deaf by the oral deaf who are educated in the elementary and secondary programs for the nonoral deaf has already been recognized. Continued separation of oral deaf persons from the normally hearing community may serve only to further postpone their adjustment to the latter. The impact of segregated, partially segregated, or unsegregated training programs for the nonoral and oral deaf at the post-secondary-age level is, as yet, undetermined.

Through new legislation this past year, vocational rehabilitation agencies can now provide notetakers as well as tutors. Aural rehabilitation and speech improvement services are also generally made available. Adequate personal and social adjustment counseling and an overall, integrated program for the oral deaf student at the campus level, however, are not usually available.

ALTHOUGH PLACEMENT OF THE ORAL DEAF IN FACILITIES FOR THE NORMALLY HEARING IS HIGHLY DESIRABLE, IT IS NOT SATISFACTORY UNLESS COMPREHENSIVE SUPPORTIVE PROGRAMS ARE PROVIDED.

The adventitiously deaf in adulthood. The problems found in the re-education and rehabilitation of those who become adventitiously deaf in adulthood also illustrate the need for supportive programs in educational institutions. Not only speech retainment and speech reading have to be considered, but vocational retraining and relocation may be indicated in some instances.

In the past, emphasis has been on providing aural prostheses and placement in a vocational training program. Little or no consideration has been given to the measures needed to make such programs fully comprehensible to the adventitiously impaired student.

The costs involved in the rehabilitation and compensation of industrial and service-connected hearing losses have called attention to these segments of the population. Professionals sustaining disabling losses seem to have been, in some measure, removed from the mainstream of rehabilitation processes. The need for help in accepting a new role in his profession may be just as essential for the professional if he is to continue his contribution to society as the re-training program is for the shop foreman.

THE EFFECT OF ADVENTITIOUS DEAFNESS IN ADULTHOOD AS A CAUSE OF VARYING DEGREES OF VOCATIONAL DISABILITIES AMONG PROFESSIONAL, AS WELL AS NON-PROFESSIONAL WORKERS, HAS LONG BEEN OVERLOOKED.

The Partially Hearing

Many partially hearing individuals have well developed oral and manual skills. The majority, with properly fitted amplification, would have enough residual hearing to be classified among the moderate-to-severely hard of hearing. These persons are defined as partially hearing because they did not have the benefit of early aural rehabilitation. As a result, they usually have a language deficit. Language and educational deficiencies make it extremely difficult for these persons to further their vocational training in existing programs for the normally hearing.

THE NATURE OF THE PROBLEMS OF THE PARTIALLY HEARING STUDENTS IS SELDOM UNDERSTOOD. They usually make poor educational records. As a result, they have to drop their selected area of training and take some type of vocational training which is less demanding language-wise. These students, almost invariably, fail to reach their vocational potential.

Partially hearing from the schools for the deaf. Many members of this group who have been educated in the schools for the deaf face an additional problem. They frequently exhibit a personal-social identification with the nonoral deaf group and, as a result, often fail to become oriented to the hearing community--educationally, socially, or vocationally.

Partially hearing from regular classrooms in the public schools. Some of the severely hard of hearing have attended regular classrooms in the public school system and have been without the early use of amplification. As a result of the lack of a special classroom for limited hearing students and the lack of a staff trained in the education of the deaf and severely hard of hearing, many of these students show speech and language deficits and a pronounced educational lag.

PRESENT EDUCATIONAL PROGRAMS FOR THE DEAF AND FOR THE NORMALLY HEARING STUDENTS GENERALLY ARE NOT ADEQUATE FOR THE PARTIALLY HEARING OR THE HARD OF HEARING PUPILS.

The Hard of Hearing

Different types of problems are faced by those whose mild-to-moderate hearing impairment developed (1) pre-educationally, (2) during educational preparation, or (3) pre and post-vocationally.

Progressive losses may also cause educational and vocational malajustments which eventually merge into those faced by many deaf and hard of hearing persons. Time of onset and degree of deficit at crucial times involving language learning, educational preparation, and vocational placement determine much of the type of disability caused by a progressive loss.

Moderate hearing losses in preschool children. The preschool child is often thought inattentive by his family or kindergarten teachers. Reduced vocabulary, language retardation, and articulation defects are not always recognized in time for aural rehabilitation and developmental speech and language measures to be instituted before the child enters school. Reading problems may appear and difficulties with subjects entailing complex language skills may present problems which, unless proper measures are undertaken, become cumulative and secondary and post-secondary studies are affected.

The hard of hearing in elementary and secondary programs. Instructors, and often the students themselves and their families, do not recognize the handicapping effect in the classroom of mild or moderate losses since the oral and more concrete language skills appear to be satisfactory.

A great number of these students evidence some educational retardation. The role the hearing loss plays in their depressed academic achievement was often discounted with the result that comprehensive evaluative procedures and supportive educational and personal-social adjustment measures are instituted late, or not at all.

Moderate hearing losses sustained post-vocationally. In addition to the above-mentioned groups of individuals who sustain a hearing loss pre-educationally, or before the conclusion of their educational programs, there is a third group which consists of workers who become hard of hearing as a result of environmental noise or other causes. Longevity is contributing to the group of progressive high frequency losses.

The etiology, degree, and stability of these losses need to be taken into consideration before re-education and vocational re-location procedures can be initiated.

MANY OF THE HARD OF HEARING, WITH LOSSES EITHER STABLE OR PROGRESSIVE AND RANGING FROM MILD TO MODERATE IN DEGREE, FAIL TO REACH THEIR EDUCATIONAL AND VOCATION POTENTIAL THROUGH LACK OF COMPREHENSION REGARDING THEIR NEED FOR SUPPORTIVE PROGRAMS ON THE PART OF EDUCATORS, EMPLOYERS, AND THE REHABILITATION DISCIPLINES.

The Multiply Handicapped with a Hearing Loss

Special considerations are needed by students whose hearing loss is accompanied by other disabilities. The concomitant problems may be described as: (1) intellectual deficit, (2) emotional disturbance, (3) other physical impairments, and (4) combinations of any of these. Intellectual deficit and emotional disturbances usually present more serious difficulties than additional physical impairments.

Careful evaluation of multiply handicapped individuals must be made before integration into post-secondary-level educational facilities can be considered.

The Nonorganic Hearing Losses

Comprehensive programs for the education, orientation, and general rehabilitation of nonorganic hearing losses have not been common in existing educational facilities. Availability of specialized personnel and adequate supportive measures would be necessary if persons with this type of problem were to be given proper attention in regard to substantial adjustment counseling.

THE MOST SATISFACTORY WAY OF INCORPORATING PERSONS WITH NONORGANIC HEARING LOSSES IN EXISTING EDUCATIONAL TRAINING PROGRAMS HAS NOT YET BEEN DETERMINED.

Magnitude of the Problem

Studies, Surveys, and Statistics

Studies in regard to the incidence of hearing loss in the population are clouded by the complexities of what is meant by a "hearing disability" and its significance in terms of the limitations it represents to each person. Degree of loss, age at onset, discrimination for speech, effectiveness of amplification, educability, physical, emotional, and intellectual abilities independently affect the person's functioning and also interact as mutually dependent factors.

The multifaceted problems of the limited hearing populations--deaf and hard of hearing--become apparent in the data presented by the following studies, surveys, and statistics. The magnitude of the vocational rehabilitation problems of the future is presently reflected in the numbers of children with hearing losses--losses which may be, in some cases, only one of several disabilities.

Non-differentiated statistics. Concerning the deaf and hard of hearing population in the United States, the American Hearing Society (1964) stated that "between 2,000,000 and 2,250,000 school and 2,000,000 preschool children suffer from impaired hearing. Estimates of adults with hearing loss range from 8,000,000 to 15,000,000." Additional figures included: "60,000 new born infants annually require special help due to hearing loss; more people suffer from hearing impairment than from cancer, T.B., polio and heart disease combined; and 6 to 8 million American citizens require hearing aid help."

From these figures there is no way of knowing how many of these persons fall into the various categories of deaf, partially hearing, hard of hearing and nonorganic losses. Functionalism, insofar as satisfactory communication is concerned, is not defined. The implication of the estimate of children with hearing loss begs the question of whether today's children will inherit the present educational, social, and vocational problems when they become tomorrow's adults.

Identification difficulties. David Myers, M.D., (1962) called deafness the "invisible disability." According to Dr. Myers, "it is estimated that up to ten per cent of the population of the United States has some degree of hearing deficiency. Perhaps because deafness is concealed as much as possible, the public has been unaware of its prevalence, or indifferent to its problems. Although it is our most common physical disability, deafness is one of the last physical handicaps to enlist public sympathy and support."

Levine (1956) wrote that the "hypacusic" represents by far the largest single group of handicapped individuals in the United States. She also indicated that since persons with a hearing loss are extremely sensitive about this disability, they tend to hide it. As a result, exact statistics are difficult to obtain.

Statistics Related to the Deaf Population

The following data and Table I were prepared by D. Robert Frisina for distribution at the Working Conference on Health Aspects of Hearing Conservation in Washington, D. C., (1959):

> A significant number of individuals among the U.S. population are confronted with the problem of hearing impairment. The incidence of hearing loss in the United States is estimated to be approximately two and one-half million. This is reflected in a recent report prepared by the Division of Research and Statistics, Office of Vocational Rehabilitation, Department of Health, Education and Welfare (1954). Based on census figures of 1940 and 1950, the total number of deaf and hard of hearing was reportedly 2,385,000. Table I summarizes, according to various age levels, the estimated number of deaf in the United States. Of the total population of the United States in July, 1953, the number of deaf was estimated to be 188,100, of which 95,300 were male and 92,800 female.

Most estimates of the deaf population do not differentiate the pre and postlingually deaf, the oral from the nonoral deaf, or indicate how many may have developed their losses in adulthood. Hardy (1962) stated:

> A very considerable amount of study is being undertaken with regard to those with problems which have been generalized as "deafness," and about persons who have been generically grouped as "the deaf." As more and more guidelines of differentiation emerge, it may well be that somebody's concept of "deafness" is by no means a fruitful common denominator among groups of persons who are so different in other respects. It seems quite clear, for instance, that among deaf children the varying capacities of the individuals, in learning and achievement, reflect not only different kinds of deafness, but also different kinds of children.

The Report, Education of the Deaf, (1965) provided figures for the profoundly deaf population. The following estimates were not meant to include those who became adventitiously deaf in adulthood:

> There is no reliable census of the deaf population. Estimates, nevertheless, place the number of profoundly deaf persons at between 200,000 and 250,000. These estimates refer to persons whose hearing is 'non-functional' with or without a hearing aid.. those who are linked to the world primarily through their eyes. The estimates reflect a prevalence rate commonly encountered in the literature--1.2 to 1.4 per thousand--which seems to remain reasonably constant.

As a result of an expanding population, the estimates given by the last quotation are relatively higher than those presented in the previously quoted report by Frisina which was based on the 1953 census figures.

Youth and Deafness. The study presented to the Conference on the Feasibility of Including Deaf Youth in the Job Corps by Jerome D. Schein (1965) cited the following material:

> As of 1965, there are approximately 19 million persons estimated to be in the age bracket 16 to 21 years (Siegel, Zitter and Akers, 1964). About 9.6 million are males and 9.4 million females, or about 102 males to every 100 females. The problem it to determine the number of persons in this group that are (a) hearing impaired and (b) economically disadvantaged.
>
> Table 2 summarizes estimates from several sources of hearing impairments of various degrees in age ranges close to that which concerns us here.

TABLE I

ESTIMATED NUMBER OF DEAF IN THE U.S. (Frisina, 1959)

Age in Years	U.S. Population July, 1953	Estimated Number of Deaf in the U.S. July, 1953
Males		
Under 15	23,148,000	15,000
15-24	11,075,000	9,300
25-34	11,910,000	10,800
35-44	10,992,000	11,100
45-64	15,994,000	20,200
65 and over	6,236,000	28,900
Total, all ages	79,354,000	95,300
Females		
Under 15	22,275,000	9,400
15-24	10,860,000	7,400
25-34	12,346,000	9,800
35-44	11,368,000	9,700
45-64	16,337,000	22,100
65 and over	7,088,000	34,400
Total, all ages	80,274,000	92,800
Males and Females		
Total, all ages	159,628,000	188,100

TABLE 2

ESTIMATES OF HEARING IMPAIRMENT FOR VARIOUS AGE GROUPS FROM SEVERAL SOURCES (Schein, 1965)

Source	Age Range	Rate/1,000		Number in 1965 population, age 16-21	
		male	female	male	female
A. National Health Survey (1963)	18 to 24	4.7	3.4	45,120	31,960
B. National Health Survey (1935-36)	15 to 24	3.51	2.93	33,696	27,542
C. American Annals of the Deaf (1964)	16 to 21	---	---	(6,940)	(5,962)

The data of Source A was gathered from household interviews. The figures presented are as yet unpublished. They are for all degrees of hearing loss involving both ears. Persons reporting a loss of hearing in one ear with the other ear normal are not included. The first figure, then, approximates the broadest estimate of the number of persons with binaural hearing impairments in an age range close to the 16 to 21 year age bracket.

The earlier National Health Survey estimates (Beasley, 1940) are based on audiological examinations. Only persons with an average hearing loss of 47 decibels (ASA) or more for the frequencies 1,024 and 2,048 cycles in the better ear are included. Thus, this is a more severely hearing impaired group than that estimated by Source A.

The last estimate is based on the enrollment figures in schools and classes for the deaf reported by the American Annals of the Deaf. The total enrollment for 1964 is reported to be 17,350 males and 14,906 females. Apply in the rate of .4 to each of these figures yields the approximation for the 16 to 21 year population shown in the table.

The Annals figures tend to underestimate the number of deaf students in the United States (Doctor, 1964). However, these figures may be considered minimum estimates of the most severely hearing impaired persons in this age group.

Deafness in adulthood. Emphasis has been placed on the cost of the rehabilitation of workers who acquire some degree of deafness in adulthood. Aram Glorig (1958) describes the aspects of compensation:

> Estimates of the potential cost of compensation for disability owing to hearing loss vary from a few million dollars to several billion dollars. We estimate the potential cost during the next decade to be, conservatively, $154,000,000.00.
>
> Judging from the figures presented in the monthly magazine Labor Review, we estimate that there are some 6,000,000 men who work in the noisy job operations found in the majority of large industries including mining, steel, automotive, and petroleum. According to Roger B. Maas (1964):
>
> Among our adult population, it is estimated that between 10,000,000 and 15,000,000 people need hearing aids. The Veterans' Administration recently reported an annual expense of $60,000,000 applied to approximately 90,000 war veterans with service-connected hearing disabilities.

Although many of the people suffering from hearing losses which are industry and service-induced may be categorized as hard of hearing, the seriousness of the high frequency impairments which affect discrimination for speech represent one of the most difficult educational and vocational placement problems.

Reduction of the Number of Partially Hearing

The Council for Exceptional Children (1960) pointed out "the fact that the brighter children with severe hearing losses can probably acquire language more readily by using the new electronic, hearing-aid equipment than can children of less intelligence. This automatically moves some of the more talented children from classes for the deaf into classes for the hard of hearing."

A LARGE NUMBER OF CHILDREN AND YOUTH WHO FORMERLY APPEARED IN THE STATISTICS FOR THE DEAF BECAUSE OF LACK OF AMPLIFICATION MAY NOW MORE APPROPRIATELY FALL INTO THE CLASSIFICATION OF HARD OF HEARING INSOFAR AS EDUCATIONAL AND VOCATIONAL PLACEMENTS ARE RELATED TO POST-SECONDARY-AGE TRAINING. This is, of course, credited to the prevalence of the use of amplification, but it does not underestimate the importance of specialized faculty and procedures in the elementary, secondary and post-secondary programs.

Hard of Hearing Population Estimates

Education of the Deaf (1965) pointed out that:

> It should be borne in mind, however, that there are many times as many hearing-impaired children (as deaf) who are classified as hard of hearing. These children also require special attention in varying degrees.

The statement by John O'Neill (1965) reflects some of the confusion of the hard of hearing:

> "What's the matter--can't you hear me?" is an expression used many times a day....The question, however, has catastrophic meaning for some 300,000 children and some 2,300,000 adults--for they are truly hard of hearing.

The following data and Table 3 were prepared by Frisina for distribution at the Working Conference on Health Aspects of Hearing Conservation in Washington, D. C. (1959):

> Table 3 reflects the estimated number of hard of hearing in the United States. (Op. Cit., OVR Report No. 130-155). It is interesting to note that approximately 53% of the hard of hearing are 65 years old or over. The 65 and over age group constitutes the largest single group (1,164,600) of hearing handicapped. This suggests that approximately 10% of the United States population over the age of 65 have hearing impairments and accentuates the overall problem of geriatrics confronting our nation at present. Recent figures suggest that among the 40 million school-aged children (5-17 years) only 0.5% (200,000) have "hearing problems of communicative and educative significance." Johnson, W. Children with Speech and Hearing Impairments: Preparing to Work with Them in Schools. U. S. Dept. of Health, Education and Welfare, Bulletin 1959, No. 5, p. 6)

TABLE 3

ESTIMATED NUMBER OF HARD OF HEARING IN THE U. S. (Frisina, 1959)

Age in Years	U. S. Population July, 1953	Estimated Number of Hard of Hearing in U.S., July, 1953
Males		
Under 15	23,148,000	31,700
15-24	11,075,000	34,700
25-34	11,910,000	49,200
35-44	10,992,000	97,300
45-64	15,994,000	309,600
65 and over	6,236,000	626,500
Total, all ages	79,354,000	1,149,000
Females		
Under 15	22,275,000	27,000
15-24	10,860,000	26,200
25-34	12,346,000	56,100
35-44	11,368,000	96,900
45-64	16,337,000	304,400
65 and over	7,088,000	538,100
Total, all ages	80,274,000	1,048,700
Males and Females		
Total, all ages	159,628,000	2,197,700

Estimates of the Multiply Handicapped with Limited Hearing

From the Education of the Deaf (1965) comes the following information:

> In response to the Committee's questionnaire, nearly 4,000 multiply handicapped children were reported in schools and classes for the deaf. While not all of these require special attention, many probably do. One state education official has estimated that at least 400 multiply handicapped in schools and classes for the deaf in his state should be placed in special classes.
>
> Furthermore, not all in need of such attention are to be found in schools and classes for the deaf. A recent testing program in the schools for the mentally retarded in one state uncovered nearly 200 cases where the problems of retardation were further complicated by a significant degree of hearing loss.

Receptive, central, and/or expressive disorders may be associated with some amount of brain damage. The problem, as Marshall Hester (1965) explained in a conversation concerning the multiply handicapped, was "not so much that a person had a central disability as it was that it might not be recognized and the resulting learning difficulties lumped with the difficulties derived from the hearing loss."

Frisina (1959) quoted material from the American Annals of the Deaf (1959) regarding the multiply handicapped:

> Improved medical techniques, earlier detection of developmental deviations and a steady increase in the general population apparently have been reflected in the number of multiple-handicapped hearing impaired children. Complete figures concerning multiple-involvements among the hearing impaired are difficult to determine. However, some attempts have been made, the results of which are presented in Table 4.

TABLE 4

MULTIPLE HANDICAPPED AS REPORTED IN FACILITIES FOR SCHOOL-AGE DEAF IN U. S. (after Frisina, 1959)

All Types of Educational Facilities	
Aphasic - Deaf	509
Blind - Deaf	122
Cerebral Palsy - Deaf	582
Orthopedic - Deaf	202
Mentally Retarded - Deaf	1125
Brain Injured - Deaf	280
Grand Total	2820

Implications of the information presented in Tables 1 through 4 might be summarized as follows:

1. The number of hearing-handicapped individuals in the United States seems to be increasing. This probably results from a variety of influences among which exist the factors of general population increase and improved prenatal and postnatal medical techniques. Some two and one-half million deaf and hard of hearing were among the United States population of 159½ million in 1953.

2. The incidence of the multiple-handicapped seems to be increasing in proportions which are likely to demand greater attention from medical and non-medical specialities.

3. The earlier detection and apparent increase in the number of children with hearing impairments has created a demand for specially trained teachers which has seriously outstripped the supply.

4. Incidence of hearing impairment in the age range of 45 years and older includes approximately 85-90% of all those with hearing impairment and is perhaps not unrelated to extended life expectancy and our industrialized milieu.

Nonorganic hearing loss estimates. Nonorganic hearing loss became a stark reality after World War II. James Jerger, (1963) reports several sources of data:

> The importance of functional hearing loss as a problem of considerable magnitude was first widely recognized in the armed forces...The importance of the problem to the government can be appreciated by considering that the incidence of

> functional hearing loss in a VA population has been estimated as 11% to 45% (Johnson et al., 1956). Since approximately 80,000 veterans have service-connected hearing impairments (Anderman, 1960), it can be estimated (using the minimum VA incidence figure) that at least 9000 veterans have had or continue to have a functional hearing problem...
>
> Another area of concern is the problem of functional hearing loss within an industrial setting...Finally, functional hearing loss may occur within the ordinary otologic or audiologic setting. In fact, functional hearing loss may arise whenever hearing is measured.

Glorig (1958) pointed out:

> Studies of military personnel and of Veterans Administration beneficiaries show that some 25 to 30 per cent of the persons tested attempted to simulate either partial or total hearing loss.

Need for Adequate Statistics

Before plans can be made for a comprehensive approach to the habilitation and rehabilitation of the limited hearing, statistics concerning the incidence, prevalence, and type of disabilities are needed (Goldstein and Schein, 1964; Proceedings, Conf. Coll. Statistics Sev. Hear. Impair. & Deaf., 1964).

It is important to know whether these figures are likely to increase or decrease for each category of hearing impairment and/or disability.

The effect of automation on the number of jobs which will no longer be available to the deaf or which may be injurious to the hard of hearing needs to be considered in the planning of facilities for post-secondary-age training.

Accurate data is necessary for the planning of vocational rehabilitation through services provided and additional training or retraining. They are basic to the question: CAN EXISTING EDUCATIONAL FACILITIES FOR THE NORMALLY HEARING STUDENTS PROVIDE EFFECTIVE ACADEMIC, TECHNICAL AND TRADE PROGRAMS FOR THE ADULT LIMITED HEARING POPULATION?

Purpose of the Project

Experience reveals that limited hearing persons with almost any type and degree of loss have experienced extreme difficulty in reaching satisfactory educational achievement levels and, ultimately, in attaining vocational, technical, or professional placements commensurate with their potential.

Adult training programs designed to meet the needs of the pre and postlingually deaf--oral and nonoral, the partially hearing, the hard of hearing, the multiply handicapped, and those with nonorganic losses have been almost non-existent.

The basic questions asked of the Project were: Could an effective solution to the vocational problems of the limited hearing populations be found through the utilization of existing educational facilities, how could this be done, and what were the factors which contributed to success or failure?

Original Statement of Purpose

The original purpose of the project was "to determine the effectiveness of a comprehensive trade, technical, and academic program in existing educational facilities when certain techniques are introduced to help overcome the problem of impaired communication for students exhibiting severe hearing losses."

Expansion of the original purpose. The original goal of the Project was to secure a population of young educable adults with severe hearing handicaps and to place this group in existing educational facilities for hearing students. For several reasons, it was not possible to obtain a population which strictly conformed to the stated description of subjects. Many of the available subjects who had attended a school for the deaf, and who functioned in a milieu of deafness, could not be properly classified as profoundly deaf.

Futhermore, the relatively low population density of the State of Idaho yielded such a small number of subjects for selection that it was necessary to accept students who varied greatly in age distribution, intellectual functioning, degree, type, and onset of hearing loss, educational backgrounds, and extent of integration into the hearing community.

The resulting group heterogeneity did not, therefore, conform to the letter of the original subject definition. This situation, however, resulted in a fuller demonstration of the spirit of the project, the focus of which was the enrichment of the educational, vocational, and personal experiences of limited hearing persons representing the broad specturm of the hearing impaired. The heterogeneity of the Project population provided a more realistic appraisal of the needs of the deaf, partially hearing, and hard of hearing and demonstrated that to any individual with a given condition of hearing loss might be added an enhancement of his life's achievements.

Statement of Specific Aims

The specific aims specified by the original statement were:

1. to determine whether the communication media in existing educational facilities can be adapted to the needs of students with limited hearing.

2. to investigate the manner in which this may be accomplished with the least disturbance to the existing programs and participatangs and with maximum benefit to the deaf.

3. to study the comparative costs involved in such a project [program], and

4. to evaluate the resulting personal and vocational rehabilitation of these students as compared to matched subjects who did not participate in this project.

Expansion of the original aims. As the project developed, the original aims were interpreted more broadly. A "comprehensive" program was eventually defined as encompassing broad, supportive measures in the areas of:

1. improved communication skills,

2. educational adjustment and preparation,

3. realistic personal-social orientation, and

4. transitional vocational experience with post-program placement and follow-up.

In addition to the primary purpose of providing additional opportunity for the effective training of adult limited hearing students, three other aspects were spelled out more fully in the expanded aims.

A fifth goal was to provide a laboratory of integrated experience in the tri-areas of audiology, speech pathology, and education of the deaf for the professional trainees attending the university.

Orientation of the university personnel and the community was a sixth essential and opportune adjunct to the overall purpose of the Project.

Seventh, it was hoped that the Project would ultimately serve as a prototype for the use of existing academic, technical, and vocational education of limited hearing persons with all degrees of loss and complexity of problems which affect the achievement of satisfactory educational and vocational functionalism.

Some of the Problems Faced

Some of the problems immediate to this study were concerned with (1) the scarcity of specialized personnel, (2) the adequate training of the existing staff, (3) the establishment of adequate procedures, (4) the adaptation of the communication media in the classroom, (5) the development of various levels of educational materials and techniques appropriate to the needs of a heterogeneous limited hearing population, and (6) the provision of comprehensive supportive measures wherever and whenever needed.

Feasibility. The goals for such a project could not be restricted merely to the demonstration of the feasibility of such a training program. The emphasis of the program could not be placed only upon the needs of the limited hearing populations. It was also necessary to study the effects of such a program for limited hearing students--irrespective of degree of loss, mode of communication, and disparity of educational backgrounds--upon the achievement levels, satisfactoriness, and satisfaction of their normally hearing peers.

Interrelationships. Other aspects which had to be considered were:

the percentage of each type of limited hearing students which could be accepted, the optimum length of time each group should remain in the program, the desirability of adjusting standards in specific courses to fit the abilities or disabilities of the project students, and the meaning of "graduation" or awarding of special certificates in lieu of diplomas.

It was feared by some individuals that the reputation of the training facility and, thus, the placement of the normally hearing graduates, might be affected by allowing the participation of limited hearing students in the training program. The reaction of some of the faculty members was of overprotection or rejection rather than a realistic approach to the students' problems.

The Schools of Trade and Technical Education, Liberal Arts, Education, and Business Administration, cooperated with the Department of Speech Pathology and Audiology, the Speech and Hearing Center and the Vocational Rehabilitation Administration to DEMONSTRATE THROUGH A COMPREHENSIVE PROGRAM PROVIDING ACADEMIC, TECHNICAL, AND VOCATIONAL TRAINING, THAT PERSONS WITH ANY DEGREE OF HEARING LOSS WHICH WAS HANDICAPPING TO THE PURSUANCE OF ADULT EDUCATIONAL PROGRAMS COULD BE BROUGHT INTO A MORE COMFORTABLE AND PROFITABLE RELATIONSHIP WITH A NORMALLY HEARING SOCIETY.

Definition of Terms

The term limited hearing, as defined in the Project, included the categories designated as deaf, partially hearing, and hard of hearing. These groups could be defined by isolated variables such as degree of loss, age at onset, site of lesion, stability of hearing levels, method and effectiveness of communication, educational background, personal attitudes, social and vocational milieu, concomitant abilities and disabilities, supportive and rehabilitative measures, experience and opportunity. Any attempt, however, to categorize the limited hearing population other than in terms of the individual himself and his personal functionalism falls far short of reflecting the intricacies of the problem.

Students in the Idaho Project were grouped generally according to the interrelationships of multiple criteria affecting the educational and vocational placements so that some recommendations could be made for training programs involving "typical and atypical categories."

Terms Referring to Degree of Hearing Acuity and Language Development

The terms, deaf, partially hearing, and hard of hearing, were used according to those defined by Ralph Hoag (1965), and the Report, Education of the Deaf (1965). No person with one ear assessed as having essentially normal hearing was included.

The deaf. In general, the deaf were considered as those persons whose principal source of learning language and communication skills was visual and whose loss of hearing, with or without amplification, was so great that auditory training was of little or no benefit. This term was applied to students whose loss was sustained both pre and post-lingually.

The partially hearing students. The partially hearing classification included those students whose hearing losses would ordinarily be described as severely hard of hearing, but who did not function as hard of hearing persons at the time of admission to the project. It appeared that they had been unable to benefit from, had lacked the opportunity to, or had refused the opportunity to use amplification and, as a result, required programs similar to those made available to the nonoral deaf. The speech and language of the partially hearing students was superior to that of the nonoral deaf but were not sufficiently developed for them to be placed in unrestricted educational programs.

The hard of hearing students. At the beginning of the Project, the hard of hearing students were accepted only as affiliates. It was soon discovered, however, that even those with mild-to-moderate losses had experienced educational problems or failures.

Many of the hard of hearing students were functioning originally as moderate-to-severely hard of hearing persons. They were able to improve their receptive communication skills sufficiently through a program of aural rehabilitation so that they functioned satisfactorily with a minimum of supportive educational measures.

Terms Referring to Placement and Functionalism

The Committee on Medical Rating of Physical Impairment (1958) defined the following terms:

> The following explanations of generally-used terms in programs for the disabled will suffice for all practical purposes:
>
> 1. Permanent Disability. This is not a purely medical condition. A patient is "permanently disabled" or "under a permanent disability" when his actual or presumed ability to engage in gainful activity is reduced or absent because of "impairment" and no fundamental or marked change in the future can be expected.
>
> 2. Permanent Impairment. This is a purely medical condition. Permanent impairment is any anatomic or functional abnormality or loss after maximal medical rehabilitation has been achieved and which abnormality or loss the physician considers stable or non-progressive at the time evaluation is made. It is always a basic consideration in evaluation of permanent disability. It should be remembered, however, that permanent impairment is a contributing factor to, but not necessarily an indication of, the extent of a patient's permanent disability.
>
> 3. Evaluation (Rating) of Permanent Disability. Evaluation of permanent disability is an appraisal of the patient's present and probable future ability to engage in gainful activity as it is affected by non-medical factors such as age, sex, education, economic and social environment and the medical factor—permanent impairment.

Glorig (1958) defines an important aspect of hearing loss and its relationship to the individual:

> Social Competence. The effect of hearing loss on social competence should be measured in terms of the ability to hear and to understand speech.

The vocational and social compentencies are included in the term, functionalism, as defined by Britannica Dictionary (1959):

> Functionalism....a doctrine that holds function to be of prime importance...

Review of the Literature

The Project students were placed arbitrarily into four categories related to ability to function in an educational facility designed for the training of normally hearing students.

The review of the literature related to each group and its particular problems and needs for supportive measures is reported in the Sections devoted to a description of the Project programs for each group.

"And Here We Have Idaho...."*

Idaho is bordered by six states and Canada. Until recently, Idahoans needing assistance in the areas of speech, hearing, and language were faced with the choice of commuting many hundreds of miles, disintegrating the family group, or remaining in the community where little or no help was available.

The Needs

It was estimated in 1962-63, that in Idaho, a state with a population of less than 700,000 people, all of whom lived in rural settings or in towns of less than 45,000 residents, each speech and hearing clinician served 70,000 persons.

The total school population in the 1960 census was 171,865. Basing the expected number of speech and hearing problems on Pronovost's New England survey of children (1951) and the adult figures of the White House Conference Report (1960), the following estimates were made for the Idaho population:

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*The first line of the chorus of the Idaho State Song.

TABLE 5

EXPECTED NUMBER OF SPEECH AND HEARING PROBLEMS IN IDAHO

Classification	Children	Adults	Total
Severely Hard of Hearing	1,126	2,227	3,353
Hard of Hearing	2,064	20,412	22,476
Totals	3,190	22,639	25,829

Services Available in Idaho

At the time these estimates were made, the Idaho School for the Deaf and Blind employed 17 teachers for 102 deaf and hard of hearing children. There were no special classes for limited hearing pupils in the public schools.

If the School for the Deaf had not accepted the children with moderate-to-severe hearing losses, and those with multiple handicaps, they would have had little educational opportunity. Amplification and preferential treatment for limited hearing students were nearly non-existent in the public school system.

The Speech and Hearing Center at Idaho State University, three Easter Seal Centers, the Elks' Rehabilitation Center, two public school speech clinicians, one otologist, one audiologist, and a limited number of otolaryngologists were endeavoring to fulfill the needs of children and adults with communication disorders in the entire State of Idaho at the time the Project proposal was made. Table 6 gives the projected estimates of the incidence and personnel needs in the public schools in 1964-65 as made by Eleanor Bodayl, State Elementary and Special Education Supervisor.

TABLE 6

ESTIMATES OF SERVICES NEEDED IN IDAHO*

	HEARING IMPAIRED		SPEECH IMPAIRED
	Medically Significant	Educationally Significant	
%Incidence	.010	.005	.070
Number of Students 6-21 yrs.	18,000	900	12,600
Ratio of Specialists Needed	One educator of the deaf for ten students		One speech correctionist for 100 students
Total Number Specialists Needed	90		126
Specialists Presently Employed	17 educators of the deaf 0 audiologists		3.6
ADDITIONAL NUMBER OF SPECIALISTS NEEDED	73 educators of the deaf 15 audiologists		122.4 speech correctionists

TOTAL PERSONNEL IN SPEECH, HEARING, AND/OR LANGUAGE DISORDERS NEEDED IN THE STATE OF IDAHO 210.4

Table 6 gives the projected estimates of the incidence and personnel needs in the Public Schools in 1964-65.*

*Estimates according to Eleanor Bodahl, State Elementary and Special Education Supervisor.

Project Rationale Related to Needs

As the needs of the Idaho adult limited hearing population was realistically considered, it became abundantly evident that restrictions regarding age, degree of loss, presence of other disabilities and history of educational or vocational problems were not in keeping with the spirit of the Project. Edward Reay (1965) stated:

> Some young people were accepted who were a rung or two or three down the ladder from those fairly good academic students who attempted but failed to pass the Gallaudet College entrance examinations. It is problematical whether a national or a regional trade school for the deaf if such schools were in existence today, would accept low-achievers of the 5th grade level for enrollment. However, these are the deaf people that have the most need for more, full-time training in a vocational school.

The challenge became one of providing within existing programs, or in compatible adjuncts to ongoing training, those services and supportive measures which would meet the multi-faceted needs of each student.

Description of the Existing Facility

Idaho State University - 1965

Idaho State University is a nationally-accredited institution offering both undergraduate and graduate degrees. The University is divided into four colleges: liberal arts, business administration, education, and pharmacy; two divisions, medical arts, and graduate studies, and the School of Trade and Technical Education. Through these various colleges and divisions, the University offers approximately fifty major undergraduate study areas leading to seven degrees, twenty study areas leading to nine masters' degrees and fourteen programs in the trade and technical fields.

The 318-acre campus includes some 40 major buildings devoted to academic, service, and administrative functions of the university. The modern library houses approximately 110,000 books and bound periodicals and over 375,000 state and federal government documents which are being increased by about 12,000 a year. The library is a depository for U.S. government publications, all non-secret publications of the Atomic Energy Commission, and a selective depository of the Carnegie Institution of Washington, D. C. Through its membership in the Pacific Northwest Bibliographic Center, over 2,500,000 volumes are readily available through inter-library loan. The library regularly receives over 2,200 general and research periodicals and nearly 100 daily and weekly newspapers.

The Idaho State University Museum sponsors research in biology and history. A technical journal and a series of professional monographs are published by the museum.

The enrollment at the time of the project was in excess of 4,000 normally hearing students, and the faculty numbered some 250 instructors who represented in their training and prior experience about 200 American colleges and universities and 25 foreign educational institutions.

While 90 per cent of the students were from Idaho, the enrollment also included representatives of every section of the United States and a number of foreign countries.

School of Trade and Technical Education. The programs offered at the School of Trade and Technical Education vary in length from one to three years.

The following are one-year programs: Body and Fender, Secretarial Training, Cosmetology, Diesel Mechanics, and Aviation Mechanics which consists of two one-year courses, Airplane Mechanics and Aircraft Engine Mechanics. Eight of the programs are established for two years of training. These are: Welding, Machine Shop, Auto Mechanics, Instrumentation, Printing, Upholstery, Drafting and Design, and Instrumentation programs are set up to prepare students to become technicians.

Completion certificates are issued to those students who satisfactorily complete the requirements.

Classes operate from six-to-eight hours each weekday. Only those subjects which directly apply to the student's course of study are required. Although students are not required to have completed high school, it is highly recommended that they do so.

Department of Speech Pathology and Audiology. The only academic and clinical training programs in Idaho for speech, hearing, and language disorders are located at Idaho State University. These programs are offered by the Department of Speech Pathology and Audiology and its Speech and Hearing Center. A triad of emphases in Speech Pathology, Audiology and Education of the Deaf is available on both the undergraduate and graduate levels. A required course in speech, hearing and language disorders is taught for all majors in elementary education. All activities of the Department are closely allied with related areas at the University and with personnel in the medical, paramedical, psychological, educational, and rehabilitative professions throughout Idaho.

The Department of Speech Pathology and Audiology includes the Speech and Hearing Center with its speech clinic, hearing clinic, communication laboratories and atypical education units. The Department is administratively responsible for the clinical, rehabilitative, and research activities as well as for the academic preparation of students majoring and certifying in the areas of speech, hearing, and language disorders. Emphasis is given to the implementing of the social, educational, and psychological rehabilitation for persons of all ages having difficulties in the areas of speech, hearing, and language development.

1963-64 Enrollment Figures in the Academic Programs

Full-time undergraduate students	70	
Full-time graduate students	3	
		73
Part-time undergraduate students	15	
Part-time graduate students	7	
		22
Students fulfilling certification requirements but with announced majors in other areas	12	
		12
	Total	107

Speech Clinic. Diagnosis, evaluation, therapy, and rehabilitation are available for people with the following disorders: aphasia, articulation, cerebral palsy, cleft palate, deviate swallowing, laryngectomies, stuttering, mental retardation, foreign accents, and voice problems. The Speech Clinic usually has a case load of approximately 50 each term. This does not include the speech services available to the university students. The number in the latter program varies from 15 to 40 each term.

Hearing Clinic. The Hearing Clinic offers the following services: pure tone testing, audiologic assessments, hearing aid evaluations, auditory training, and speech reading. In addition to a hearing screening program for the University students (approximately 4,000) more than 250 persons utilize the hearing testing services at the Clinic.

Communication Laboratories. The Communication Laboratories specializes in readiness programs for children with speech, hearing, and language impairments. Special programs are available for the mentally retarded and the aphasoid, as well as for students with severe hearing losses. Groups are organized according to age and disability. These cover a range of programs including the preschool and geriatric groups.

Community programs. The speech correction programs carried on in southeastern Idaho public school districts by supervised student clinicians usually include 400 cases. Each year approximately 5,000 students are screened for speech defects.

A conservation of hearing program reaches over 9,000 children during the school year. Implementation of audiological services to industry is carried on.

1963-1964 Services Given by the Speech and Hearing Center

Services		Number of People Served
Speech, hearing and language therapy		450
Speech screening		5,000
Hearing screening		9,183
	Total served	14,633

Research activities. The research activities have included a six-year longitudinal study of the mentally retarded, entitled, "AN INVESTIGATION OF THE DEVELOPMENTAL ASPECTS OF CERTAIN LANGUAGE SKILLS IN A GROUP OF INSTITUTIONALIZED MENTALLY DEFICIENT SUBJECTS," a study of stuttering, "A PILOT STUDY OF THE SPEECH PATTERNS OF A FAMILY OF STUTTERERS," a service project, "COMMUNICATION THERAPY SERVICES FOR APHASIC ADULTS," and the construction of a sound conditioning room for the deaf-mentally retarded.

The Counseling and Testing Center. The Center is a Department of the College of Education whose major purposes are: (1) provision of counseling and testing services to the college community, (2) the provision of materials and teaching facilities for students in the behavioral sciences, particularly those working for a master's degree in guidance and counseling, (3) research in the problems of general interest to the admissions program of the University and other subjects related to the behaviorial sciences, and (4) service to the community through testing and counseling facilities.

The staff of the Counseling Center includes a director, a full-time counselor, a graduate assistant, and secretarial staff. In addition, the consultative services of two other psychologists from the psychology department, an educational psychologist and a counselor from the College of Education are also employed. Thus, four psychologists and two counselors are available as resources.

Departments showing special interest in project. The Departments of Nursing, Psychology, Teacher Training, and Business are especially interested in helping in the planning of the special educational programs and in having the observation and training aspects available to their majors.

University services. The University Student Health Services are available to all of the full-time project students.

Recreational opportunities. The academic and vocational programs of the university are supplemented by social and recreational activities designed to meet the extra-curricular interests of all students. Campus organizations include honorary and professional societies; social fraternities, sororities and clubs; service groups, and the student government councils. In addition, there are dances, assemblies, lectures, concerts, plays and similar events; the band, choir and orchestra; the theatre group; publications, including the student newspaper, the Bengal, and the yearbook, the Wickiup, and a campus radio station, KBGL. For sports-minded students there are men's and women's intramural programs and activities, such as bowling, table tennis and billiards, sponsored by the Student Union.

The university's recreational centers include the Student Union where facilities ranging from a music-listening room to bowling and a ballroom for dancing are available; the film theatre where popular full-length movies are shown every weekend; an indoor swimming pool; tennis courts and indoor and outdoor areas for other sports and activities.

Local and State Resources

Pocatello, Idaho is a university community of approximately 43,000 people. It has a great number of agencies, service organizations, religious institutions, and business establishments which are interested in providing opportunities for the student population to study and work.

The cooperation of the Superintendent and Staff at the Idaho School for the Deaf and Blind contributed in a large part to the success of the Project.

Vocational Rehabilitation Administration

The assistance and support of the Counselors and Directors of the local, state and regional Vocational Rehabilitation Agencies was essential to the implementation of the various aspects of the Project.

The financial assistance and the progressive thinking at the national level of the Vocational Rehabilitation Administration made it possible for Idaho State University to undertake this project to determine the effectiveness of comprehensive trade, technical and academic programs for the rehabilitation of educable young adults with limited hearing.

Methodology

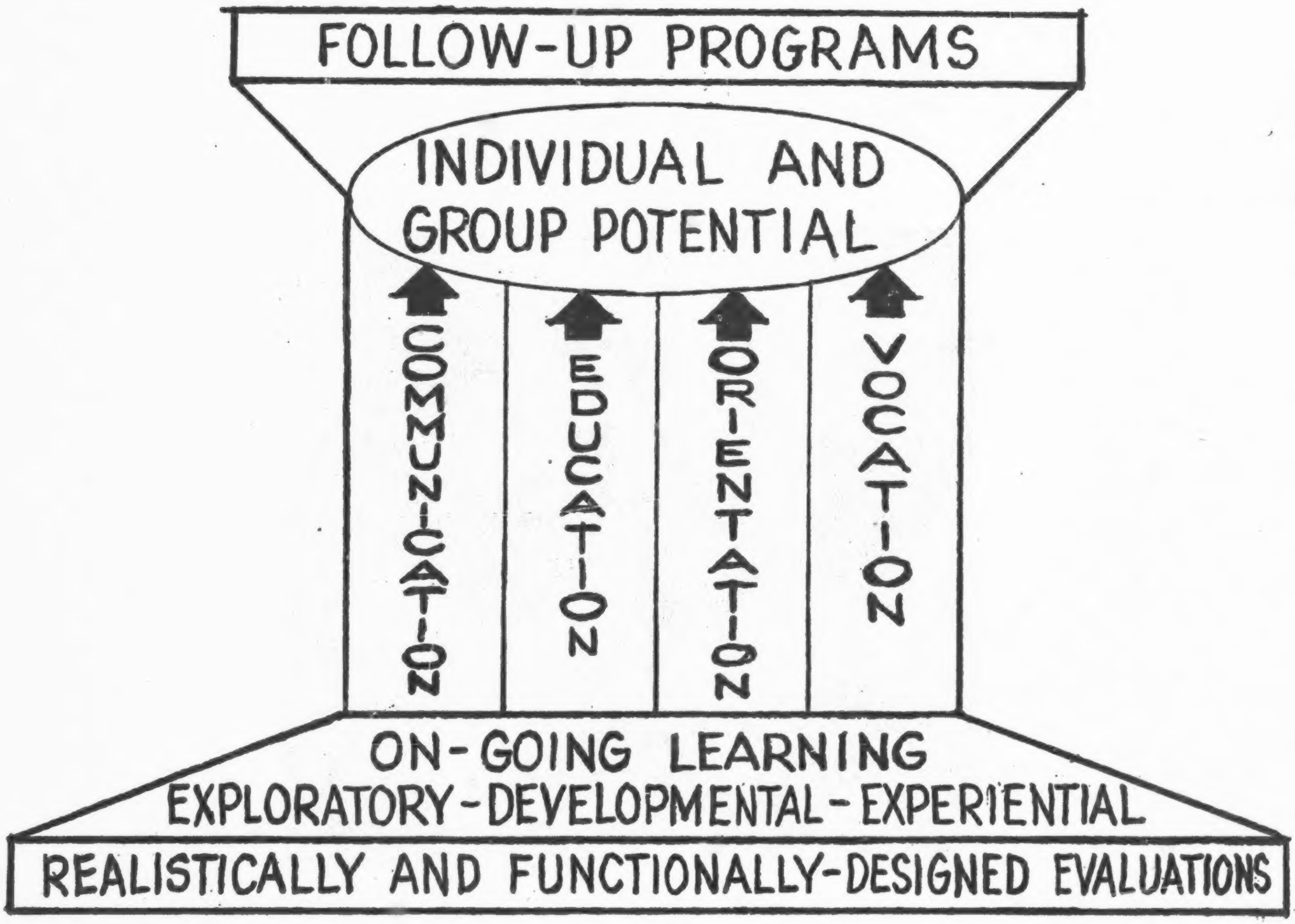
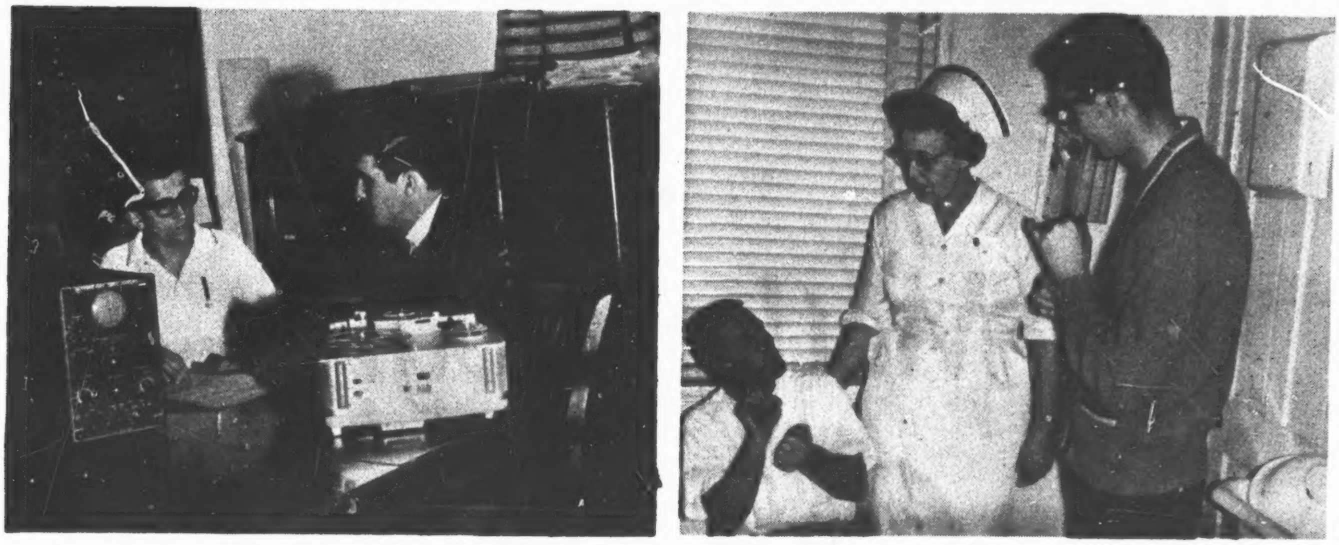

FOLLOW-UP PROGRAMS
INDIVIDUAL AND GROUP POTENTIAL
COMMUNICATION
EDUCATION
ORIENTATION
VOCATION
ON-GOING LEARNING
EXPLORATORY-DEVELOPMENTAL-EXPERIENTIAL
REALISTICALLY AND FUNCTIONALLY-DESIGNED EVALUATIONS

Diagram of the Philosophy for the Comprehensive Supportive Programs



ECLECTIC APPROACH TO COMMUNICATION

RECOGNITION OF ABILITIES

METHODOLOGY

Development of Comprehensive Supportive Programs

The development of comprehensive supportive programs for adult limited hearing populations encompasses a number of philosophical and practical considerations.

Identification and Definition of the Problem

Labeling. The label of "deaf" has often been applied indiscriminately to persons having distinct types and degrees of hearing impairment. The label has sometimes been identified by the general public as synonomous with intellectual deficit, inferior motivation, lack of responsibility and dependability, inefficiency on the job, and other undesirable traits.

Much of this unfortunate labeling has been addressed to the congenitally deaf with severe speech and language deficits. Children and adults, however, with less severe impairments, or who have become adventitiously deaf in adulthood, have often been described as inattentive, slow to comprehend, and exhibiting personality maladjustments.

The lack of understanding faced by a majority of limited hearing persons is also exhibited by many of the limited hearing individuals themselves. They tend to reject other limited hearing persons whose auditory problems are dissimilar to their own.

Definition of impairment/disability. The question of when a hearing loss becomes a disability is a highly individualized one. It has to be interpreted in terms of the relationship existing between the loss and the person's ability to function in a given situation.

A student's ability to compete successfully in a classroom with normally hearing peers may be affected by a mild or a mild-to-moderate loss. An adult exhibiting a progressive sensorineural involvement with concomitant loss of discrimination for speech may find business and social situations frustrating and functionally unsatisfactory.

Any attempt to place limited hearing adults in vocational training or retraining programs needs to be accompanied by the adoption of meaningful terminology related to the individual's ability to function in particular educational and vocational placements.

Professional orientation. Meetings of specialists directed toward the planning of programs for the "deaf" have often been colored by the different orientations of the discussants and, thus, vaguely defined populations and programs have assumed a surface "sameness" that does not actually exits in the highly heterogeneous limited hearing or "deaf" populations themselves.

As a result, however, of the economic and social spotlight turned upon the deaf with severe speech and language deficits, the need for better ways of training them to be vocationally competent is receiving attention.

In spite of the leadership displayed by the educators of the deaf in the area of deaf education, other rehabilitative disciplines have largely ignored the needs of those limited hearing persons whose disabilities have been less dramatic than those of the congenitally deaf. The necessity, nevertheless, for better ways of training all of the various groups of limited hearing adults is becoming poignantly apparent.

Recognition of similarities. Two of the first considerations pertinent to the study of the needs of limited hearing persons consists of recognizing that limited hearing persons are more *like* normally hearing persons than *unlike* them and that the stressing of *abilities* rather than *disabilities* is paramount for the development of positive interpersonal and labor-management relationships.

Satisfactoriness of educational placements involves not only the interim adjustment and achievement of the limited hearing students and their normally hearing peers but also the ultimate vocational competencies of both groups.

Lack of guidelines. Guidelines for initiating the Project were almost non-existent. The direst predictions were made by some institutional staff members and project advisors. Some of the prospective limited hearing students themselves did not seem to comprehend the reasons behind a study of an integrated training program in existing facilities for the normally hearing.

Methodology. Methodological controversies concerning oral-manual approaches to teaching were ignored. The project students were products of widely divergent background and presented disparate levels of development. Many of the problems which had plagued them at preschool, elementary, and secondary levels were still unresolved. They had to be considered, however, in relationship to their ability to function satisfactorily with normally hearing peers and there no longer remained a span of years to pursue any specific teaching methods as opposed to other approaches. Essentially it had become an all-out-effort which called for an eclectic approach which could be applied to both the formal training and the supportive measures.

Four areas that needed attention became almost immediately apparent: (1) deficits in speech and/or language skills, (2) depressed educational achievement levels, (3) immature and unrealistic personal-social orientation on the part of the limited hearing students and insufficient and inaccurate orientation on the part of the normally hearing population, and (4) unsatisfactory vocational training and placements. Varying degrees of help were needed by the different students.

Rationale for the Supportive Measures

From the known-to-the-unknown. Habilitation and rehabilitation procedures need to provide a causeway from the known-to-the-unknown. The congenitally deaf were most familiar with other nonoral persons and illustrated the adjustment to a homogeneous grouping as opposed to a heterogeneous orientation.

It was hoped that this group of students might find satisfactory relationships to both deaf and normally hearing communities. Although it was felt that the ultimate decision regarding heterogeneous relationships belonged to the limited hearing persons themselves, a "both-and" rather than an "either-or" solution was sought.

Readiness. A differentiation had to be made between "physiological and psychological readiness periods." Impairment of input systems, unchartered thought processes, and deficient communication skills were combined with restricted orientation and depressed emotional maturity.

The philosophy that persons who have not kept readiness schedules will never reach their potential was essentially one of defeat. *The question posed by the project was not what he would have been, but what he could still be!*

The challenge became one of developing programs, techniques, materials, and of training personnel capable of helping persons with various types of limited hearing to proceed to a higher degree of psychological readiness.

Development approach. The developmental approach involved three steps: (1) preparatory programs going from the *simple-to-the-complex,* (2) *synthesization* of the on-going activities, and (3) *follow-up* for immediate and long-term reinforcement.

Experiental learning. It was postulated that experiential learning was inherent in decision making, awareness of choices, preference for a way of life, and an understanding of others. The comprehension of mores, of the material and spiritual rewards of success, the meaning of competition, reliability, and possibly, the development of motivation, were dependent upon experiential learning.

Some Steps Toward Vocational Satisfactoriness

Some of the steps needed for vocational satisfactoriness and satisfaction were categorized in the following manner:

1. *awareness* of the diversity of educational, social, and vocational expectations of the normally hearing population,

2. *opportunity* to prepare, to adjust, to work with reasonable hope of competing successfully with any peer group,

3. *reward* involving the right to choose, to be appreciated, to receive the fruit of labor, to be given responsibility, to be accepted, and to be of

4. *service.*

Balance and homeostasis. The demonstration of how to make the limited hearing segment of the population more employable involved finding a balance between the needs of both the project students and the normally hearing students attending the existing educational facility. The attempt to establish a homeostasis involving the highly heterogeneous student populations is described in the following sections.

Comprehensive Supportive Program in Communication

The significance of a particular auditory disorder to a particular person can be comprehended only in terms of his behavior. A realistic picture becomes apparent only after the initial study is viewed in light of interim evaluations and post-program functioning.

Communication, as an intro-personal and inter-personal process, involves not only the recognized oral-aural rehabilitative approaches with special attention given to the cognitive aspects, but also the adaptation of the communication media within the facility and those related to individual teaching procedures.

The aims stated in the original grant application were:

1. to determine whether the communication media in existing educational facilities can be adapted to the needs of students with severe hearing losses, and
2. to investigate the manner in which this may be accomplished with the least disturbance to the existing program and participants and with the maximum benefit to the deaf.

Variables Affecting the Degree of Impairment

Many variables, in addition to the degree of hearing loss, contribute to the need for a comprehensive communication program. As Boyce Williams (1964) commented, many of the more seriously involved individuals require an almost one-to-one relationship if some learning processes are to culminate satisfactorily.

Some of the interacting variables which help determine the type of communication supportive measures needed are:

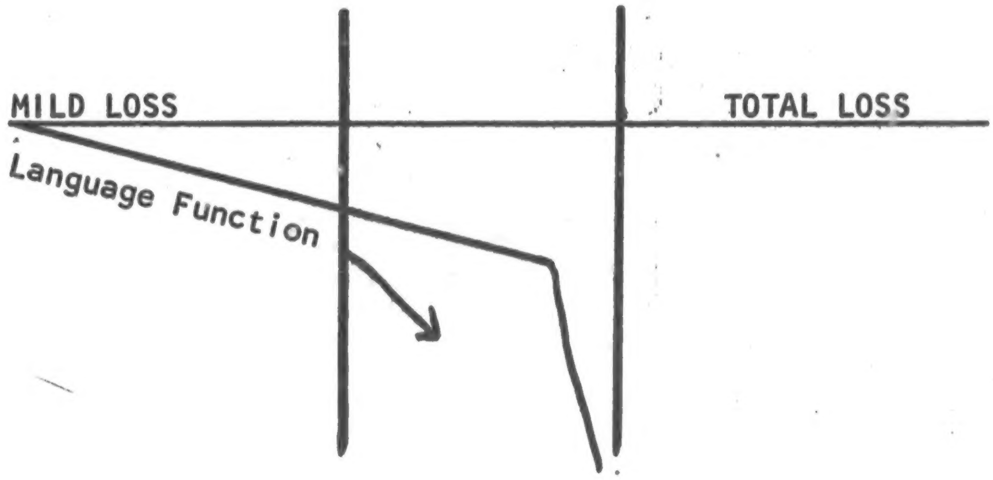
1. age at onset of loss and the ensuing stability or progressiveness of the disability,
2. site of the lesion and whether amplification is effective in modifying the impairment,
3. method of communication and its acceptance and prevalence of use in a changing milieu,
4. attitude of the hearing impaired person toward his own loss, the attitude of society toward it, and the resulting attitude of the limited hearing person toward society's attitude, and
5. any receptive, central, and/or expressive disorders that might be associated with some amount of brain damage.

The latter problem, as Marshall Hester (1965) indicated is not so much that the person has a central disability, but that it is not recognized as such and that the resulting learning difficulties are lumped with the hearing loss. He also points out that the degree of an individual's hearing loss is not in linear relationship to the degree of his educational, social, or vocational success.

Language function. Hester (1965) expanded his concept to include language. He indicated that the hearing level may be located at any point along a continuum but that the accompanying language deficit often increases logarithmically as it begins to plunge when the hearing loss enters the moderate-to-severe range.

If any one variable were to be chosen as the one most influential in the educational placement of limited hearing students in existing programs for the normally hearing, it would be the level of language attainment.

This does not mean, however, that language is the only variable upon which ultimate vocational success is dependent. Special educational placements or certain supportive programs can enable the student to stress his abilities rather than his disabilities and become an able member of the work force.



Thinking. The limited hearing populations have always been faced with a pressing demand for effective aural-oral language usage. Deficits in the use of expressive-receptive avenues have been looked upon by many as reflecting inferior intellectual ability. Hans Furth (1966) stated in a recent book:

> With the recognition of language behavior as a valid sphere of psychological interest, thinking also became a proper subject of scientific investigation. Until recently, little or no attempt has been made to define and distinguish notions in the language-thinking area. This omission was in part due to the indifference of investigators to whether the behavior studied was termed language or thinking.
>
> Among these assumptions may have been the theory that language faithfully mirrors thinking, that language is almost the only important symbol system, and that language, symbols, and thinking are necessarily, even inseparably linked.

Recognizing that many of the persons with profound, congenital deafness have poorly developed verbal systems as we know them but that they can think, perform, adapt, etc., educational placements must be made which involve the use of visual and tactile stimuli such as are present in trade and atypical programs.

"Speech teaching." Clarification of the term "speech teaching" aided in better inter-disciplinary communication between educators of the deaf and speech therapists. The latter felt that the classroom teacher should be responsible for the "language teaching" per se, including written expression, but that the complicated motor skills of oral expression should not be drilled on in class until the student had achieved sufficient reinforcement in individual therapy sessions so he might use the complex sound clusters clearly and correctly. This avoided the practicing of articulatory errors and the perpetuation of poor speech habits.

Supportive Communication Measures

Supportive communication measures for the widely divergent limited hearing students were integrated with all other aspects of the program. For the purpose of this report, however, they are presented in the following list, using classical nomenclature:

I. Improvement of Personal Communication Skills

  A. Receptive Aspects

    1. Audiological assessment
      a. pre, interim, and post-program evaluations

    2. Amplification recommendations
      a. Selection, continuous evaluation, and training in the use of an individual aid
      b. Collaboration with the DVR, DPA, and the local hearing aid dealers for financial assistance

    3. Auditory orientation
      a. Adjustment to amplification
      b. Improved listening habits
      c. Environmental orientation and stimulation

    4. Speech reading
      a. Principles
      b. Practice
      c. Analysis of essential vocabulary

  B. Expressive Aspects

    1. Speech Assessment
      a. Oral peripheral examination
      b. Evaluation of the bases of speech
        1b. respiration

2b. phonation--pitch, intensity, and timbre
3b. resonation
4b. articulation
c. Complexity of expression
1c. length, vocabulary, and syntax
2c. level of abstraction and concept relationships

2. Speech Program
a. Speech habilitation
b. Speech improvement
c. Speech conservation
d. Public speaking

II. Improvement of Communication Skills of Normally Hearing Associates

A. Training in Manual Skills

1. Project staff
2. Identification of university and community personnel familiar with manual skills
3. Training in manual language for the professional students

III. Adaptation of the Communication Media for Presentation of Educational Programs

A. Orientation regarding auditory disorders and aural rehabilitation procedures

1. Teaching staff
2. House Parents
3. Local businessmen
4. College students majoring in various areas of education

B. Adaptation of the communication media in the educational facility

1. Tape recordings

1. Tape recordings

As the instructor spoke, the lectures were recorded by battery-run tape recorders with adapters for transcription purposes. The notes were prepared from the tapes by office help before four o'clock each afternoon. The project students who needed this type of assistance picked up the notes and studied them in time for the next class meeting.

In addition to transcribed notes, explanation by the instructors or fellow students was available whenever needed.

The academic programs were more easily adapted to this medium of teaching than the technical areas. Instructors in the trade courses rarely found it necessary to record their explanations.

Commentary. The recording of lectures was found to be highly satisfactory from the student point of view and of little disturbance to the regular program as long as:

a. the instructor was willing to have his lectures transcribed,
b. the other students in the class did not feel they were being discriminated against,
c. the equipment was available for recording and transcription, and
d. the office help was sufficient to prepare the typed notes.

Insofar as the Project was concerned, none of the above-mentioned caused any difficulties. All of the instructors were extremely cooperative and funds were available for office help.

2. Tutoring by instructors

Tutoring by the class instructors was employed. Conferences were arranged according to the instructors' schedules. This varied from short periods after each class to established weekly conferences.

Commentary. Tutoring by instructors was an efficient way of clearing up any misunderstandings and establishing rapport. This means of adapting the communication media seemed to be most satisfactory when:

a. the student was able to follow the lecture material reasonably well and only pertinent suggestions and a minimum number of tutoring sessions were needed,
b. the instructors were willing and had the necessary time to give help free-of-charge or funds for tutoring fees were available, and
c. the students were responsible enough to avail themselves of the conference opportunities when provided.

Some of these sessions might be more accurately described as faculty-student conferences.

3. Tutoring by normally hearing peers

The tutoring by normally hearing peers assumed similar characteristics to that provided by faculty tutors. One advantage to the limited hearing student was that the normally hearing student tutor could come to the Speech and Hearing Center for the tutoring sessions.

Student assistants were employed to aid the project students in specific classes. These assistants either attended the same class or had taken the class previously. This was expanded, in some cases, to an "educational buddy system" in which one student would be held responsible to the project staff for the overall program of the "limited hearing buddy."

The latter approach was especially useful in the trade areas because the student assistant was able to work with the project student during the class periods since they were both taking the same course of study.

Commentary. Student assistants and tutors were of the greatest benefit to the limited hearing when:

a. the student assistants had sufficient background in the subject matter,
b. they had learned whatever techniques were necessary to be able to establish satisfactory communication (manual language),
c. they were willing to do this free-of-charge or funds were provided, and
d. enough time was available for supervision of the tutoring program by the project staff.

4. Interpreting by project students

Some of the students from the partially hearing and deaf groups showed exceptional ability in speech reading, understanding the material being taught, and in simultaneously interpreting the lectures through finger spelling and signing to their deaf classmates.

Several instructors suggested that a staff member be appointed who could provide such services. It was impossible, however, to cover the wide range of student educational choices in this manner.

Commentary. The interpreter was of maximum benefit to the limited hearing students and of the least disturbance to the regular programs when:

a. the signing did not slow down the formal lecture,
b. it was used in small groups for additional explanation after the lecture,
c. the inner language of the group was sufficient to permit the understanding of the more abstract material not fully explained through manual communication, and
d. funds were available to supply each class or group of nonoral students with this type of special assistance.

5. Special grouping within the class.

A special group was set up within the regular class for the students with severely limited hearing. The instructor gave additional attention to the work and needs of this group.

Commentary. This approach was of maximum benefit to the limited hearing students and of the least disturbance to the regular programs when:

a. the instructor was willing to divide the class,
b. the student-teacher ratio was small enough to allow for special attention to a particular group, and,
c. the other normally hearing students did not feel they were being slowed down or that they were not receiving sufficient attention from the instructor.

Special grouping with the class of normally hearing students was not found to be satisfactory if the special group needed more than casual attention.

6. Preferential seating of special students and orientation of faculty

Many of the special students were able to benefit sufficiently from amplification, speech reading, and preferential seating so that an orientation of faculty members to aural rehabilitation procedures was all that was required.

Commentary. Preferential seating and orientation of faculty was effective when:

a. the limited hearing student had sufficient residual hearing and discrimination for speech to benefit satisfactorily from amplification,
b. the instructor was aware of the situation and was willing to cooperate so that conditions were at an optimum regarding light, noise, distance, etc., and
c. the supplementary help was available through conferences with instructors, student assistants, and classmates' notes.

Bases for the Evaluation of the Effectiveness of the Supportive Communication Program

The procedures used for the evaluation of the supportive communication program are described in the section on admission and evaluation procedures.

Comprehensive Supportive Program in Education

Post-secondary educational facilities for persons with normal hearing have traditionally been closed to persons with severe hearing problems and have been relatively ineffectual for those with more moderate losses. Administrators of academic, technical, and vocational training programs have been faced with many philosophical and practical considerations in regard to the acceptance of limited hearing students. The lack of heterogeneity of the deaf and hard of hearing populations has further complicated their decision regarding the acceptance of limited hearing students in existing educational facilities.

The majority of limited hearing students has not found the elementary and secondary school programs for the normally hearing students satisfactory without specialized staff and special grouping, at least for some subjects.

This does not mean that there have not been deaf and partially hearing persons with sufficient intelligence, fortitude, parental or tutorial help, and determination to succeed in regular post-secondary educational institutions, but it does indicate that appropriate supportive measures designed to meet individual and group needs must be provided for the majority of limited hearing adult students.

Re-definition of Admission Criteria

The Project at Idaho State University was not intended, primarily, for exceptional individuals. It was an attempt to compose something for all those who simply could not succeed for the lack of whatever the few really successful deaf and hard of hearing students had had.

The responsibility of the study, as re-defined the second year, was to accept applicants in spite of widely divergent educational backgrounds, differing degrees of hearing impairments, complex communication problems, and varying potentials for educational and vocational placements. It was an attempt to help all of the prospective wage earners achieve through native capacity, supportive measures, and existing educational programs whatever level of competence they were individually capable of achieving.

The university setting which included a school of trade and technical education was especially suited for such a study. Even so, it was necessary to (1) provide additional special programs, (2) allow for various modifications of the language requirements within the existing curricula, and (3) adapt the communication media to meet the widely diverse needs of the limited hearing students.

The comprehension of what the students' needs were and the planning for meeting them involved the personnel of the speech and hearing center, of the school of trade and technical education, the deans, department chairmen and special faculty committees from the academic, business, and education colleges. Broad educational concepts were explored regarding the habilitation and rehabilitation of limited hearing students within an existing educational facility for normally hearing students.

Planning of Comprehensive Educational Programs

All data relating to educational placement was compiled from the following: educational histories, achievement test scores, audiological assessments, previous evaluation of communication skills, psychological batteries, vocational aptitude tests, personal interviews with students and families, recommendations from school officials, and past vocational training and placement records. Past failures were not considered valid reasons for denying entrance to any prospective student.

Admission requirements to the School of Trade and Technical Education. The need for flexibility in existing or in newly organized areas was illustrated by the following excerpt from the Education of the Deaf (1965):

> The selection of applicants for admission to any college is frequently a complex and unsettling task. The admissions policy of a college must be attuned to its institutional role in society at any point in time. This role is reflected in its aims, character, and educational programs, and these change in response to special needs at special times. The policy must be responsive to such realities as the nature of the applicant population, society's needs, and the current resources of the institution. The lack of highly valid predictors of student success further complicates the matter of selection.

Fortunately, for the project students, the School of Trade and Technical Education at Idaho State University did not require a high school diploma for admission.

Achievement levels. The literature reflected the problems of depressed achievement levels among limited hearing students. These are discussed in more detail in the following section treating with the groups and their characteristics.

Deficiencies in educational backgrounds were apparent in students of all groups. Several had not attended school beyond the elementary level, some showed weakness which may have been the result of borderline intellectual functioning, lack of motivation, no opportunity to attend school, or attendance in programs inadequate to meet the specific needs of the hard of hearing or deaf students.

Educational adjustment. In order to compensate for the disparate educational backgrounds, some groups of two or three students were formed. Two hours of remedial classes were held every afternoon after the trade and technical school courses were over.

An enriched curriculum was provided for students who had reached an intermediate level of mathematics, English composition, reading, writing, vocabulary, current events, history, and science.

For those students placed in restricted technical courses because they were unable to compete successfully in courses demanding post-secondary levels of language and abstract concepts, a substitute English and composition class was held at the Speech and Hearing Center. Vocabulary related to their training courses was stressed.

The intellectually and artistically gifted students were offered courses in literature, public speaking, advanced composition, and discussion of sociological and philosophical concepts. These classes were selected according to the experience and needs of the individual student.

Supervised study periods. Supervised study periods were held daily at the Speech and Hearing Center for all students who needed help outside of class.

Educational procedures. Educational procedures were not limited to the use of aural-oral avenues.. Manual, written, or oral-aural approaches were used as long as they appeared to be effective with any specific individual student or group.

Educational-vocational naivete. The majority of the project students was extremely naive in regard to educational-vocational possibilities. The experience and opportunities of the nonoral deaf had been more restricted than that of the oral deaf and hard of hearing, but the latter also displayed unrealistic attitudes toward the relationship of their disabilities and abilities.

At the initiation of the project, the students were free to chose their own areas of study. The inability to choose an appropriate vocation was confirmed by subsequent failures. As a result, several students had to be entered in other programs during the second year of the grant. In order to eliminate as much of this educational maladjustment as possible, a program of exploratory skills was inaugurated the second year of the Project.

The lack of programs designed to assist limited hearing students to make realistic choices, and the lack of appropriate supportive measures may have been, in a large part, responsible for the instances in which persons had not been satisfied with the occupation for which they had been trained or re-trained. This educational-vocational naivete' has been expensive for the agencies and families engaged in the preparation of limited hearing persons.

Exploratory skills. Some of the difficulties in selecting appropriate educational-vocational placements depended upon the evaluation of the extent of visual and/or motor involvement. It soon became apparent that the usual diagnostic procedures did not accurately assess the functionalism of the student and that it was necessary to observe each pupil under actual learning or working conditions.

The need for a vocational and social evaluation program was supported by an article from the Saturday Review (1964) captioned, "Education Around the World."

> Automation reduces the demand not only for unskilled laborers of the kind usually produced by high school vocational courses. It increases only the demand for workers with college or technical school education who make the machines.
>
> The jobs that require high-level technical training also require a knowledge of mathematics and science as well as a good grasp of English. If this basic knowledge is not acquired in high school it is not likely to be acquired anywhere. It is much easier for an adult to learn, on the job, to operate a machine than it is for him to repair his deficiencies in mathematics, science, and English after he has left high school.

Many boys and girls of superior academic talent choose vocational courses because their family traditions and their personal aspirations at the time they enter high school are not such as to cause them to anticipate going to college. When they later discover that college is an appropriate goal they find the better colleges closed to them because they have not had the right kind of high school preparation.

For students who are not going to college, high school offers the last chance to study literature, history, science, mathematics, and the arts, with the aid of teachers If they devote most of their high school time to vocational training, their liberal education is neglected. Its lack may later restrict both their vocational opportunities and their capacity to take full advantage of life in a civilized community.

Although a brief exploratory course may be desirable, extended vocational training is not appropriate until the student has made a firm vocational choice. And in a period of rapid technological change, early vocational choice is neither possible nor desirable--many students now in school will spend their adult lives in types of work that do not yet exist, cannot be predicted, and consequently cannot yet be specifically prepared for.

Technical vocational courses do not solve the problem of educating the slow learner because the trades for which they prepare require both good general intelligence and a knowledge of the basic academic subjects. Vocational teachers do not want their courses to become dumping grounds for slow learners.

The culturally deprived child needs an education that will bring him into the culture; only a basically liberal education that provides the cultural background not available at home will enable him to overcome his handicaps. He needs a better knowledge of English and an introduction to art, music, literature, history, science, and the principles of government at least as much as he needs vocational training. Allowance must be made for his limitations; in many cases the traditional academic program must be altered to meet his special needs. But the basic disciplines can be taught in different ways and at different levels to students who differ widely in both academic aptitude and cultural background. When properly taught, they can later be applied to many different vocations.

Choice of Educational Placements

Standard curricula. Students were permitted to enter the standard academic courses of the University if they were able to pass the entrance examinations. In some of the trade areas, no pre-requisites were set up in order to use the class itself as a type of exploratory skills unit before coming to a decision in regard to a student whose ability to qualify was in some doubt.

One of the difficulties in doing the latter became apparent when the student actually was unable to keep up with the class and the class opening would then remain unfilled for a semester or the remainder of the year. Because of the lack of space for normally hearing students, the using of regular courses for exploratory educational placement of limited hearing students was sometimes difficult to justify. This led to the establishment of atypical curricula.

Atypical curricula. The atypical programs provided training in areas not included in the standard academic, trade, or technical areas. Some of the students attending the atypical units evidenced superior abilities but had multiple disabilities or serious educational discrepancies which prevented them from profiting from regular educational placements.

The atypical programs also served to demonstrate the potential of a number of students who had tested low on the standard assessment scales.

Some of the atypical curricula were:

1. Photography
    a. dark room and developing techniques
    b. engraving
    c. lighting

2. IBM Training

3. Secretarial Training
    a. beginning typing--manual, electric, selectric
    b. intermediate typing--manual, electric, selectric
    c. filing
    d. business machines--10-key and full-key adding machines and electric calculators

4. Clerical Record Keeping
    a. warehouse stockcards
    b. petty cash
    c. bank deposits and reconciliation statements

5. Library Skills
    a. catalog indexing
    b. typing
    c. bookbinding
    d. shelving

Restricted curricula. Restricted curricula referred to courses in which the technical material was presented to both the normally hearing and limited hearing students conjointly. The courses involving advanced levels of language, vocabulary, and abstract concepts were substituted by courses at the level of the limited hearing students' educational backgrounds and were taught in special classes at the Speech and Hearing Center. Their content was coordinated with the classroom teaching.

On-the-job-training. On-the-job-training proved to be appropriate in several instances. Those students with restrictive, concrete thinking, limited educational backgrounds, seriously impaired communication, low functioning intellectual ability, or little motivational response seemed to respond better to on-the-job-training than to formalized educational programs. Bank and greenhouse placements were two examples of successful on-the-job-training.

Sheltered workshop placement. One of the affiliate students was recommended to a sheltered workshop program because of handicaps caused by cerebral palsy.

Educational adjuncts. Drivers' training, "charm courses" including grooming etiquette, and other items of personal-social interest, tennis, and social dancing were taught.

Weekly student follow-ups and faculty orientation. One of the most important procedures related to the educational adjustment of each student was the weekly check-up. The coordinator contacted individual instructors at least once a week. It was found that this approach was much more satisfactory than trying to have the instructors fill out rating and reporting forms. Not only was the latter extremely time consuming, but the reports were often not complete nor completed. The information gained through interviews was more useful, timely, and exact than that obtained in other than face-to-face conferences.

The interview or follow-up technique permitted an effective orientation of each instructor to the needs of each student. This type of orientation proved to be more practical than trying to arrange for group meetings, staffings, and orientation of the faculty associated with the project students. After the first introduction was made to the program, its goals, and the problems of impaired hearing, individual contacts were used exclusively for working out programs for the limited hearing students.

Staffings were reserved for the project staff members who brought data from the faculty interviews.

Comprehensive Supportive Program in Orientation

The attainment of an education and the finding of a job, per se, were, obviously, not the panacea for all of the problems facing the students. The staff found itself asking repeatedly, "What more can be done during a post-secondary-age educational program to better prepare these students adequately to live a happier, more productive life?"

One of the basic concepts practiced in working with the students and their families was the belief in the dignity and worth of the individual, the respect for the right of the individual to live his own life, to make his own decisions, and to enjoy certain personal and civil liberties. Particularly in the case of the deaf students with severe deficiencies in speech and language skills, the goal was not to expect the student to conform to a certain mode of life, but to help him explore the bredth and diversity of opportunities available to him.

Personal-Social Orientation

In discussing the levels of social maturity, Wolberg (1954) suggests the following bases:

> Estimates of personality maturity in terms of physical growth, educational achievement, resolution of dependency, sexual maturity, marriage, parenthood, quality of social relationships, and group and community participation, are possible indications of ego strength. On the other hand, evidences of immaturity (impaired physical growth, low educational achievement, continued dependency ties, sexual infantility or perversions, distorted life goals, inability to accept marriage and parenthood, inability to coordinate ambitions with aptitudes and the existing reality situation, disturbed social relationships, and lack of community participation, may, if prominent, be regarded as direct signs of ego weakness.

The orientation program was designed to offer individual and group experiences which hopefully would enable the students to develop both socially and emotionally. Social and emotional maturity appeared to be prime factors in:

1. the student's motivation and positive attitude toward learning and responding to opportunity,
2. his ability to sustain a give-and-take relationship with people, both hearing and limited hearing,
3. finding employment and satisfactorily performing his job,
4. being able to healthily attain independence from his family and to adjust to the _realities_ of everyday living without major setbacks, and
5. improving his self image toward more adequate independent and individual thinking.

Self-concept and public image. Before a positive public image could be projected, the development of a realistic and adequate self-concept had to be developed. Hearing loss, _per se_, needed to be seen in proper perspective and abilities needed to be developed and stressed. Boyce Williams (1961) stated some of the "operating factors" leading to the attainment of improved self concept among hearing impaired youth:

1. to be understood,
2. to be treated as individuals,
3. to be held to the same standards of performance as their hearing peers,
4. to be served by real professionals in all areas,
5. to be allowed time,
6. to be held equal, to be integrated,
7. to achieve social maturity,
8. to attain opportunities commensurate with capacities,
9. to be accepted as full-fledged partners,
10. to be given equal service opportunities,
11. to replace attitudes of complacency and apathy among deaf people regarding attainment of vocational, social, and educational levels equal to hearing peers.

Personal-Social Characteristics of the Students

Before any supportive measures could be inaugurated, each student had to be understood as a combined product of his past experiences with their accompanying environmental and inner emotional strain. The environment posed the question for the student of: How well he felt others accepted him, and his inner emotional climate posed another? How well did he accept himself?

Many of the students with severe losses felt accepted only by other persons with comparable impairment. Among normally hearing associates, they were withdrawn, shy, felt inadequate, and in some instances, unprepared to cope with new situations.

Emotional stress was evidenced by some of the students whose families had rejected them. Most of the students who felt different about their disability had parents who felt different in giving birth to a child with a handicap.

The majority of the students presented some degree of emotional problem--some more than others. In the younger students, the initial idea of leaving home and attending a college for normally hearing students was frightening. Some, naturally, came to the project better prepared to face frustrations and disappointments than others. Parental influence seemed to play an important part, e.g. most successful students came from parents who were successful.

Studies indicate that parents' attitudes toward children and their feelings about them are more important determinants of children's health of personality than the particular techniques of child rearing they employ.

Many students were from families of low socio-economic status. Wolberg (1954) pointed out that:

> A disturbed environment which a person cannot alter, and in which he is expected to function, can impose a burden on his capacities for adjustment. Among inordinate environmental influences are economic stress, bad work, housing and neighbor-

hood situations, abnormal cultural standards and pressures, discordant family relationships and disturbed daily habits and routines.

It seemed that the students from financially poor families did not expect much financial assistance and were in college with a specific educational goal in mind. They appeared to be better motivated than the students who had no educational goal and were only in college to please someone else.

Several of the students were going to college because they realized that they could qualify for a better job with better pay; many wanted to be independent from others and free from dependent parental ties. Some were going just to please their parents and to be given to with not apparent objective.

There was some tendency on the part of some of the parents to use the program as a last resort for their youngsters, with a "what-have-we-got-to-lose" attitude. Some of the parents who had never resolved their rejection feelings found the opportunity for further training in a facility away from home a temporary solution to their problem. The family's attitude seemed a deterrent to a student only to the extent the feeling carried over to his own thinking.

Some of the pupils came from backgrounds characterized by over-protection where they had had "things done for them" all of their childhood. This type of treatment seemed to have robbed them of one of the greatest experiences of life--the self respect that results from accomplishments.

A number of the students who had been continually indulged by parents found competition at the post-secondary-age level quite difficult. Some seemed to be "below average" in degrees of emotional development. A lack of maturity resulted in acting-out that was somewhat childish, i.e., demanding, irritable, impatient behavior characterized by temper tantrums or withdrawal.

The students had a need to excel in something. Many had been active in athletics and took pride in their accomplishments. Going to college gave them a high degree of status, but they needed to recognize that status was something they had to earn. In many cases, the students were the only ones in their families to have an opportunity to attain post-secondary preparation. This provided, for some of them, the confidence and self esteem they needed.

It was necessary for the students to have an opportunity to work out their own solution to their own difficulties. Since some of the students had been deprived of such satisfactions, and of a sufficient degree of loving kindness throughout their previous life, they were not immediately ready to help themselves. They needed to be especially cared for and supplied with a sustaining relationship with someone who was in a position to stimulate them to use their inherent capacity to change and develop.

Some Questions Asked by the Project

Should selectivity of students for post-secondary-age level training be clarified to include motivation? Could it be measured? Could it be instilled? If so, what procedures were needed?

What kind of help did the student really want from the training program? What did he expect to get from coming? Did he set long-range goals or short-range goals? Was a long-range goal realistic in the cases of students who continually wanted to change their majors? Were these expectations related to previous experience? How might new experiences be planned which might develop a greater awareness of the aspirations and expectations of the normally hearing community and of the diversity of educational and vocational choices?

Did the physical difference imparted by the hearing impairment hinder identification with the normally hearing community?

What about the students from broken homes? How many of these emotional difficulties could be solved by having counseling available to the students and their families. How many students had a healthy sexual identification? What would be gained by placing the students in homes with parental figures with the hope that positive substitute parental relationships might be achieved?

How many students had adequate information and health attitudes toward aggressive tendencies and sexual feelings? Were these feelings that had been denied because of inferior communication skills to give proper expression to them? After the student had concluded his training program and was on his own, should he be expected to be able, automatically, to function adequately on his own? What type, if any, of personal-social orientation to the normally hearing community should be provided him?

Preface to Planning a Program

It appeared imperative that past errors and lack of performance should not be compounded by continued practice or re-emphasis of the same behavior patterns. New experiences, however, needed to be studied and accompanied by whatever measures were necessary to assure the greatest possible intro-personal satisfaction and regard.

Obviously, each student had a need for acceptance, love, understanding, sense of belonging and a need for accomplishment resulting from his own efforts. Effectiveness of the orientation program was dependent upon the extent to which the students took an active and responsible part in the process.

The initial tendency for the profoundly deaf with severe speech and language deficiencies was to withdraw and reject contact with the normally hearing or other limited hearing students. The partially hearing group identified with the nonoral deaf group and rejected other limited hearing persons. The oral deaf, the adventitiously deaf in adulthood, and the hard of hearing were, in many ways, educationally and vocationally, as unrealistic as the nonoral deaf and partially hearing and were inclined to resist help or guidance until failure had become imminent.

The search for programs appropriate to the broad continum of abilities and disabilities among the project students encouraged unorthodox, innovative approaches designed to focus on areas of possible development rather than concentrating only on those noticeably impaired.

Developmental profile. It was postulated that many of the attitudes and behavior patterns displayed by certain students, particularly those in the nonoral deaf and partially hearing groups, were expressions of immature psychosocial development.

Several developmental schedules related to personal-social maturation were utilized. A special effort was made to find descriptive stages of personality which might serve as bases for the creation of situations which would demand progressively complex behavior adaptation.

One of the schedules adopted by the project staff was The Stages of Personality Development by Erik Erikson (1964). He stated:

> In each stage of child development, there is a central problem that has to be solved if the child is to proceed with confidence to the next stage. These problems, these conflicts of feelings and desires, are never solved in entirety. In all this, it is encouraging for parents and others who have children in charge to realize that in the sequence of his most personal experiences, just as in the sequence of organ development, the child can be trusted to follow inner laws of development and needs from adults. Chiefly, love, encouragement, and guidance.

John Harris, chief technical consultant to the project, reviewed part of the project philosophy regarding supportive programs in orientation in the following manner.

> Congenital or physical defect on later stages of development. Just as in early developmental stages, so in the later ones, congenital characteristics determine in part how the individual deals with the central problem of the period. Children who suffer from physical handicaps or long continued chronic illness have other impediments to the development of a healthy personality. For example, a child with impaired hearing is often criticized for being vague and slow to attend when actually he is suffering from a disorder of communication, an important means to personal growth.
>
> There are many ways in which physical disability and chronic illness are alike in their hazards for personality growth.
>
> 1. Physical disability may have marked effects upon parents' feelings about their children and their behavior toward them. Some will be over solicitous, adding to the child's difficulty. Others will try to force the child beyond his capacities and so add to his feeling of inferiority and frustration. Some will feel so personally inferior at having a physically disabled child that they will push him aside or treat him coldly.
>
> 2. There is the fact that disabling conditions and chronic illness are likely to affect the child's feeling about himself. He may feel he is to blame for the condition or that it is a punishment for bad deeds, that it is a sign that his parents do not love him or that it constitutes a claim upon them because it was they who were at fault. More realistically,

> disabling conditions may contribute to all the negative aspects of personality development to mistrust, self doubt, feelings of inferiority.

A rating scale had been developed by Dr. Benjamin H. Balser and his colleagues (1961) as an aid to early recognition of adolescent emotional problems. In a study of 1,712 pupils, a 92% rate of accuracy for predictions was scored.

Although the predictability of Balser's scale has not been studied in relationship to limited hearing populations, data concerning the use with normally hearing students is encouraging.

The items in the above-mentioned chart included: motivation, industry, initiative, influence and leadership, concern for others, responsibility, emotional display, activities in and out of school, truancy, academic average, and adjustment. In the original study, each item was rated on a five-point scale by four teachers. The results were studied by the guidance department. In regard to this project, the items and results of Balser's chart were used in the orientation supportive program.

Morphology stresses the importance of finding all of the possible relationships of ideas. Dr. Myron Allen (1962) stated that the following areas had 490 combinations:

Sub-objectives	Areas of Living	Problem Systems
A. Satisfaction of human needs	A. Self	A. Finance
B. Development of personality	B. Family	B. Discipline
C. Achievement of open mindedness	C. Occupation	C. Health
D. Improvement of human relations	D. Community	D. Esteem, power
E. Utilization of all attitudes	E. Country	E. Education
F. Total thinking	F. World	F. Communication
G. Confident problem solving	G. Church	G. Recreation
H. Dependable decision making		
I. A working philosophy		
J. Achievement of creative image		

Experimental Procedures. The application of the various personality attributes and developmental scales to program organization was experimental. The following activities illustrate how the staff attempted to bring experimental learning to bear upon the areas of emotional maturity, awareness, motivation, self concept, realistic goals, and others.

Measurement of communication patterns. Sociograms and social rating scales were introduced as measures of the type and amount of communication between individuals and groups. The recording of the specific flow of interaction was made by the project psychologist and coordinators during club activities. After each meeting, compilations of observations and recordings were made and changes in individual behavior were noted. The counselors were able to use the resulting information as a part of their guidance program.

Some of the conversational aspects which were rated were the interchange between the nonoral and the oral students and between the males and females.

Participants were scored according to whether conversational leads were accepted or ignored. Social responses were described in terms of initiation, participation, observation, or lack of interest. Motor representation was rated under normal or hyper or hypoactivity. Appearance was described as neat, careless, or dirty. The rating of social behavior included terms such as polite, rude, helpful, selfish, good sport, poor loser, playful, serious, friendly, hostile, timid, and bold. These traits were assessed for individual and group behavior.

Diagnostic therapy in an educational environment. The activities in the program labelled exploratory skills were designed for several purposes: diagnostic observation by the staff, therapeutic environment, and enrichment of the participants.

Observation was particularly valuable in the cases of the poorly motivated and multiply handicapped. The setting in an art studio was conducive to a creative, permissive atmosphere which provided personalized, supportive assistance and free, varied, and expressive activities at each student's level of expressive functioning. The opportunity to foster the use of residual hearing was taken by providing fine music and group poetry reading. Discussions were held during which students were formally and informally encouraged to express their feelings and ideas.

The group therapy situation revealed to the students how other people react to each other and to their problems. The students could see how they invested others with qualities that had little basis in fact. They came to realize that others had difficulties as great or greater than their own. They seemed to become more tolerant of these problems in the other students and this increased their tolerance for themselves. They learned to express themselves in any way they wanted with other people without being rejected or punished. They learned that others threw out unreasonable attitudes as they did. This helped them accept criticism and attack and to realize that the criticism might have nothing to do with them.

One of the most important concepts was that the students were able to note that they felt different toward the other students in the group at different times and to know that this feeling had nothing to do with the other student, per se, but only with the way they themselves felt at the moment.

The supervisor in charge of the exploratory skills group worked closely with the psychiatric social worker and the director of the project. The social worker was able to work with the students individually regarding their attitudes toward other students. There were noticeable changes whey they came to realize that they were not being blamed for anything and that no one felt it was bad or evil for their having thought certain thoughts and desires. All of a sudden their forbidden wishes started being important to someone.

The group dynamics operative in the exploratory skills program provided excellent opportunity for observation of behavior. The supervisor became adept in manual language so that all of the limited hearing students were able to find communication facile.

Social Development and Integration

Experimental procedures in home placements. Many of the girls were placed in selected home situations where mother and father figures were present. Since several had spent a large part of their childhood in residential settings or had come from inadequate homes, it was felt that it was important to provide them with experiences relating to good familial relationships.

Since the majority of the girls had never lived independently, it was felt that a home situation would provide a better introduction to their new environment. The boys, however, including those who used manual language for most of their communication, were placed in the dormitories with the normally hearing students. Adjustments by both normally hearing and limited hearing students were excellent.

One of the partially hearing students was permitted to have his own apartment. He had worked before joining the project and was a responsible and independent young man.

Homogeneous-to-heterogeneous club activities. A social club for the limited hearing students was formed. This was operated and officiated by the students themselves. It afforded both manual and oral communication simultaneously.

This organization brought all types of hearing impaired persons together. The purpose was to demonstrate to them that communication among themselves need not be obstructed because of differing degrees of loss or modes of communication.

The club provided one of the steps for the nonoral deaf students to progress from the "known-to-the-unknown" by gradual association with the hard of hearing and the normally hearing. This philosophy functioned equally well in the reverse. The latter two groups were also in serious need of becoming acquainted with the nonoral, manually-oriented group and its special problems.

Structured-to-unstructured experiences. Careful psychological testing was done on the professional trainees and those which seemed to be able to supply the best personality equivalents for the limited hearing students were chosen to participate in the club activities such as winter sports, club dances and picnics. This type of experience provided the opportunity for the students with serious deficits in oral communication skills to practice their improved communication and social awareness successfully with normally hearing peers. This selection of trainees as "representatives" of normally hearing students with whom the deaf students might expect to establish friendships provided an accepting atmosphere until such a time as the deaf students felt secure enough to look for their own "unstructured relationships."

Not only did the members of all the limited hearing groups attend the university sports activities, dances, and movies, but several of the partially hearing students joined fraternities and dated outstanding normally hearing students.

Many of the students, including the profoundly deaf, joined church groups and became active members. The campus and church associations rated high in helping the limited hearing students become well adjusted to an aural-oral environment.

Invitations to speak to local service clubs gave a number of the students opportunity to function within the normally hearing community. One of the students with moderate-to-profound hearing loss became a member of the International Toastmistress Club and distinguished herself by winning many of the contests and awards given by the local group.

A course teaching improved personal appearance, etiquette, posture, and other aspects of personality building was given.

All of the boys, except those in the group having adventitiously acquired deafness in adulthood, participated in intramural basketball and varsity track and field.

Orientation of Persons Associated with the Limited Hearing Students

Although the majority of the persons involved in the approval of the project and the eventual administration and implementation of various programs and activities were interested in providing additional training opportunities for limited hearing persons, a few rejected the program. Because of previous unsuccessful experiences with such types of students, personal or family problems involving hearing impairments, and on occasion deep-seated inadequacies which were threatened by deafness, they were unable to accept profoundly deaf students.

The coordinators kept careful contact with all teachers and administrators involved with the students. Weekly checks of the progress of every student were needed in order to provide adequate support.

Teachers were inclined to reject the students or to be too permissive with them. It was necessary to explain that no special consideration was expected in regard to grading. Teachers were asked, however, to take time to advise the coordinator and/or the student concerning the assignments and the expectations he had for satisfactory completion of the course by the student.

When placed in the transitional vocational aspect, the exploratory skills, the educational adjustment program, or the speech and hearing therapy units, a broad understanding of the students by the staff became essential. Counseling sessions were set up with the psychiatric social worker so that he was available in person or by telephone whenever difficulties arose either from needs of the pupils or of the staff. An intricate coordination of activities and the emotional components of the various aspects of the program became a part of the responsibility of the chief technical advisor and project counselor.

Sensitivity to the needs of both the students and their associates was essential for the program to be brought full term. Parents, teachers, counselors, and the limited hearing themselves had to establish realistic goals and realistic programs based on their individual differences and on the existing facilities.

The following is a list of some of the persons and groups associated with the project students:

1. parents
2. project staff
3. consultants and advisors
4. teachers
5. tutors
6. university administrators
7. university office staff
8. dormitory managers
9. house parents
10. normally hearing peers
11. college social and athletic groups
12. church staff and congregations
13. social contacts and service organizations
14. vocational placement agencies
15. transitional and permanent employees
16. personnel of institutions interested in establishing similar programs.

Some of the ways through which the orientation of associates was carried out were by:

1. personal contact
2. personal letters
3. speeches
4. newspaper publicity
5. radio
6. television
7. *The Optimist Magazine* (published by the State School for the Deaf and Blind)
8. National, regional and local publications
9. the limited hearing students themselves.

It became apparent that the deaf and hard of hearing persons themselves, as well as the professionals from related disciplines, needed to join forces if the limited hearing populations were not to be lost in an educational-social-vocational "no-man's land."

Comprehensive Supportive Program in Vocational Training

The changing vocational outlook applies to *all* types of populations. It underscores the complications and needs of limited hearing persons for additional training.

In the *Manpower Report of the President* (1964), the following data was given:

> In 1963, four-fifths of the new increase in jobs was in service, trade, and state and local government activities.
>
> Occupationally, unskilled jobs are declining in importance. Demand is expanding most in professional and technical, clerical and service occupations. Requirements for education and training for employment are increasing steadily.
>
> Two-thirds of the unemployed have less than high school education. One of every twelve workers with only elementary schooling is unemployed, compared with only 1 of 70 college graduates.
>
> For manpower policy to succeed in meeting these challenges, we must have new awareness that effective action requires

> attention in such broad interrelated fields as education, monetary and fiscal and other economic policy, science and technology, defense, and social welfare.
> --new willingness to experiment with fresh approaches and put resulting knowledge to practical use.
> --new efforts to anticipate and prepare for future requirements.
> --new institutions to coordinate separate activities as part of a considered overall policy.
>
> We must provide elementary and secondary education of quality for all of our citizens, to serve as a foundation for training and further learning. Such education increasingly has become a minimum requirement for effective activity and contribution in an advancing industrial economy. A modern program of vocational education also must be built to provide vocational skills for many who will not seek higher education.
>
> We must provide broad opportunities for education beyond high school. A sound college education or junior college or technical school preparation is necessary for a rapidly growing proportion of occupations.
>
> We must provide extensive programs of adult education. Two aspects are critical; undereducated adults must be helped to gain literacy and basic education. And adults who have received a diploma must be encouraged and given opportunity to update and broaden their learning.
>
> Elementary and secondary education improvement is particularly vital. No youth should reach working age without at least a sound basic education with which to build employable skills. Expansion of technical and adult education is another imperative.

John A. Blankenship (1964), vocational rehabilitation counselor for the deaf in the State of Alabama, stated that "The deaf person may lack a suitable vocational objective; he may be unstable in employment; he may utterly lack skills. In addition, vocational difficulty comes from attitudes toward the deaf of the public itself, of industry, and labor."

The philosophy of Jack Rucker (1965), director of the School of Trade and Technical Education at Idaho State University, describes the program provided for the limited hearing students and how he feels about the educator's role:

> As educators, our responsibilities are many. As vocational educators the field narrows some, but not to a great extent. The vocational educator's primary responsibility is to equip the student with a skill for entry into the world of work. This means accepting the student as he comes, and either offering a program in which he can succeed as he is physically, mentally, and with his

> present background, or improve his basic education and cope with his special needs to realistically assure advancement in an existing program.
>
> In view of the results of effort expended on the vocational students in this project, I am convinced that much can be done to make successful students of those with special needs. The primary factor in this success is the instructor, his attitude and ability.
>
> The greatest barrier we have encountered in educating those with special needs, is attitude. Students come to us with indifference, defiance, lack of self confidence and despondency. Progress in a program is in relation to the degree in which we can overcome these barriers.
>
> The greatest contribution vocational education can make to society, is to help these people find their place in the world of work by helping them realize they can succeed, are wanted and needed, to keep our nation the greatest in the world.

Need for the Supportive Vocational Program

Transitional vocational program. The transitional vocational program illustrated the practical application of the philosophical bases involved in all of the Project's supportive programs. Progression from the structured-to-the-unstructured, known-to-the-unknown, simple-to-the-complex, and the dependent-to-the-independent was basic to the vocational success of the limited hearing students.

The immaturity of the deaf and partially hearing with moderate-to-severe language and speech deficiencies was demonstrated upon entrance to the Project by their on-the-job behavior. Lack of punctuality and responsibility caused many of the students to fail in their first part-time and transitional vocational placements.

With the hope of changing some of the students' attitudes, the project staff set up simple tasks with immediate reward and accompanied by close supervision. The students progressed from work assignments at the Speech and Hearing Center to campus appointments and then to positions with local businesses. The latter placements consisted of maintenance in dining rooms and hospitals, shoe repair, transplanting assignments in greenhouses and clothing alterations for dress shops.

Contact was kept with the employers of the limited hearing students by both personal visits and telephone calls. Ultimately, the desire to be reliable and to avail themselves of work experiences was evidenced by the majority of the students in the transitional vocational program.

As the project students became better trained, transitional experience was provided in the library of the College of Education, and in local banks and offices. The students who gradually worked into body and fender, upholstery, photography, check sorting, and typing placements were able to obtain permanent employment in the end of their transitional experience. This type of on-the-job training proved to be an effective way of helping students become realistically oriented to the work world.

Job placement. The co-ordinated efforts of the director and counselor at the School of Trade and Technology, the Vocational Rehabilitation Counselors, the Employment Security Agency, the School for the Deaf, and the Project Staff, helped to place the students in jobs thought to be commensurate with the preparation, experience, and capabilities of each student. Having had the opportunity to observe the limited hearing students during their transitional vocational experience and on-the-job training programs, it was easier for the staff and placement agencies to assess their potential for satisfactory performance.

Follow-up. The project staff, the personnel at the Speech and Hearing Center, and the faculty continued to provide as many supportive measures as were compatible with distance, time and funds to these students who were vocationally placed. Contacts were made periodically with them and their employers. The psychiatric social worker and the coordinators visited the former students at work. Even after successful vocational placement, the limited hearing students were included in the activities at the Speech and Hearing Center.

A great part of the follow-up, however, was carried on by the Vocational Rehabilitation Counselors. These specialists provided the project staff with information concerning the satisfactoriness of the persons who had been trained by the Project.

Personnel

Initial Planning and Approval of Project

A number of persons at the university, local, state, regional, and federal levels participated in the planning of the Project. Those specially oriented to the needs of the deaf and hard of hearing populations included counselors, directors, and planning personnel from the Vocational Rehabilitation Administration, the Superintendent of the Idaho State School for the Deaf and Blind, the Head of the Department of Speech Pathology and Audiology, and the Director of the School of Trade and Technical Education at Idaho State University.

The administrative officers and research committee of the University approved the participation of the entire facility in the Project.

Fundamental Considerations

Three fundamental considerations in the planning for the Project were: (1) the needs of deaf and hard of hearing persons, (2) the need for professional personnel trained in a tri-area program of audiology, speech pathology, and education of the deaf, and (3) the need for finding a way of educating limited hearing persons in existing facilities designed for normally hearing students. in a way satisfactory to both groups

Needs of the deaf and hard of hearing. The initial intent of the study was to provide sufficient supportive communication methods to permit the nonoral student to function effectively in all of his activities. The ultimate goal, however, was to encourage the nonoral deaf who were able to develop their own oral, reading, and writing skills to do so in order to prosper in the normally hearing community.

The greatest need of the deaf and hard of hearing students, however, was the opportunity to participate successfully in training programs so that they might take their place in the work force at a level approximating their potential social and vocational levels of functioning.

Need for interdisciplinary-oriented personnel. Boyce Williams ( ) has succinctly pointed up the need for the interdisciplinary approach to training personnel working with limited hearing persons:

> The main operation factor is sufficient professional workers with special training and experience to guide the hearing impaired youth to social and vocational adjustment. Such personnel are teachers, psychologists, social workers, religious workers, para-medical workers, and medical workers. It is important to appreciate that competency in serving the deaf requires more than apparent skills in the specific discipline from which the professional worker springs. All need appreciable additional training and experience.

Valuable help was given the Project by the Superintendent and Staff of the Idaho School for the Deaf and Blind. Basic deaf education courses were given to the professional trainees, and a class in manual communication was provided for the trainees and the project staff members.

A high degree of proficiency in signing, as well as finger spelling, was demanded of the project coordinators and clinicians. Finger spelling was learned by the other staff members. During evaluation, counseling, and teaching, the partially hearing students who were both oral and manual, and the coordinators were available for interpretation whenever it became necessary.

Location for project activities. The Department of Speech Pathology and Audiology with its specially trained personnel in audiology, speech pathology, and education of the deaf and its on-going services at its Speech and Hearing Center provided the base for project activities. There, the supportive measures needed by the many types of limited hearing students were available.

Roles and Professional Backgrounds of Project Personnel

Most of the persons functioning in conjunction with the Project were regular employees of Idaho State University and other state agencies. A number of the latter, as in the cases of the Principals from the School for the Deaf, the Psychiatric Social Worker and two of the psychologists, were permitted to work by their employers as consultants or part-time participants in the Project.

The administrative aspects of the Project were assumed by the Project Director, the Chief Technical Advisor*, the Administrative Assistant, and the Chief Coordinator. A special assistant in the Office of the Comptroller supervised the expenditure of funds and the budgetary reports.

Project Director. The Project Director was certified by the American Speech and Hearing Association in both speech pathology and audiology. In addition, all academic course work had been completed for certification in the area of education of the deaf. A number of years of clinical and administrative experience in programs for persons with disorders of communication provided experience pertinent to the directing of the Project.

The Project Director was responsible for the proposal and for the direction of the administrative, educational, and clinical aspects of the program. Although consultants and advisors were available for guidance in all aspects of the program, the responsibility for the ultimate success of each applicant and the acceptance of each applicant by the staff and students of the University was inherent in this position. The Administrative Assistant and the Coordinators were immediately responsible to the Director. They carried out the recommendations of the advisory group consisting of consultants and advisors. Final decision making was the responsibility of the Director.

Administrative Assistant and Coordinators. All administrative procedures and personnel contacts other than consultants and advisors were under the control of the Administrative Assistant and the Chief Coordinator.

The following lists enumerate the majority of the responsibilities and indicate the relationships which the administrative personnel sustained with University offices:

*Psychiatric Social Worker

Administrative Assistant

Project Staff

Supervise Secretarial help
Assist in preparation of project proposals
Prepare educational aids
Prepare financial reports
Prepare statistical reports

University Comptroller

Prepare budget report
Allocation of funds
Purchase of equipment and supplies
Payment of travel stipends
Payment of consultant fees and staff salaries

Coordinators

The coordinators were chosen for professional backgrounds in communication disorders, experiences in fields of business and personnel, and availability on a seven-day-a-week basis.

Chief Coordinator

Member of team for on-going student evaluations
Observer at group work-therapy sessions
Correspondent with families
Supervisor of speech and language therapy, atypical and educational adjustment programs
Representative for agency contacts
Supervisor of transitional vocational placement and follow-up
Interpreter for nonoral deaf at evaluation and counseling sessions of Employment Security Agency

Assistant Coordinators for Men & Women

Coordinate pre-registration activities
Facilitate student registration
Clarify financial responsibilities
Housing arrangements
Contact health services
Planned recreational programs
Interpreters for nonoral deaf

Advisory Roles

Nationally recognized specialists were obtained as consultants and local and state personnel joined the project in an advisory capacity.

Special Areas Consultants

Audiology
Education of the Deaf
Psychology
Speech Pathology
Project Design

Technical Advisors

Chief Tech. Advisor
Educ. of the Deaf
Psychology
Otology
Ophthalmology
Personnel Management

Agencies

DVR
DPH
DPA
ESA
Labor Dept.

University Advisors

School T & T Educ.
College of Education
Dept. of Bus. Adm.
Dept. of Speech
Health Services

Special Areas Consultants. Project Consultants were secured for the areas of audiology, education of the deaf, psychology, speech pathology and project design. These persons were highly qualified in their particular areas and served as consultants to the Project Director, the Chief Technical Advisor, and the state and local advisors whenever it was deemed pertinent.

Their services were obtained in order to give help in the planning of new approaches to the problems of integrating the limited hearing with the normally hearing and to assist in the objective reporting of the data so that the knowledge gained might be interpreted in light of possible application to programs carried out in other settings.

Technical Advisors. The Chief Technical Advisor was a psychiatric social worker who served as consultant and counselor to all personnel on the Project, as well as counselor to all of the full-time and affiliate students. The initial planning for the technical aspects of the project was done by this person in collaboration with the Project Director.

In conjunction with the Chief Technical Advisor, the Superintendent from the School for the Deaf, the Director of Trade and Technical Education, and the Specialist in Personnel Management assisted the Project Director in the development of the program.

Agencies. The Directors and Staff from the Departments of Vocational Rehabilitation, Public Health, Public Assistance, Labor and the Employment Security Agency collaborated closely with the project staff. Project funds would have been insufficient to support many of the full-time students if these agencies had not assisted. The Employment Security Agency tested all of the prospective students before their applications were considered by the project staff.

The local and regional offices of the Department of Labor were helpful in establishing permits for project students to participate in transitional vocational experiences and to be placed in on-the-job training positions at special payment rates.

University advisors. The Directors and Counselors from the School of Trade and Technical Education at the University assisted the Project Director in evaluating students, planning programs, and solving the problems arising from speech and language deficits. They closely observed the project students when they were given trial placements in order to determine whether they would be able to compete successfully with the normally hearing students and whether they could do so without adversely affecting the progress of the class. Vocational placement in cooperation with the Department of Vocational Rehabilitation was an important aspect of the counseling program.

The Department Chairman and Faculty in the Department of Business Administration gave assistance to the project staff in regard to the atypical programs in office skills. The Chairman and Faculty members from the Department of Speech assisted the hard of hearing and adventitiously deaf students in public speaking and personality development courses.

Certain functions of the University were more closely aligned with the Project than others. Some of these were: President and Deans, the Comptroller, Housing, Registrar, Maintenance and Student Affairs; the Colleges of Business Administration, Education, Liberal Arts and the School of Trade and Technical Education; and the Departments of Physical Education, Speech Pathology and Audiology.

Health services. The Student Health Services assumed the responsibility for the health of all students, including those registered in the atypical programs.

In cooperation with the Medical Director and the Project Staff, the Committee of Consultants at the Speech and Hearing Center provided consultations. This group represented the fields of ophthalmology, otology, pediatrics, dentistry, orthodontics, internal medicine, psychiatry, orthopedics, neurology, public health, and nursing.

Other members of the Committee were specialists in the areas of acoustics, vocational counseling, clinical and educational psychology, psychiatry, clinical administration, architecture, and community relations.

Evaluation and Therapy Services

The improvement of communication, personal-social adjustments and educational placement involved members of the university staff, part-time advisors from other agencies, graduate assistants, and persons with abilities appropriate to the exploratory skills program.

The following chart lists types of specialists employed in the various areas of evaluation and therapy:

Communication Skills	Counseling and Testing	Exploratory Skills
Audiologists	Psych. Social Worker	Supervisors of Atypical Programs
Speech Pathologists	Clinical Psychologist	Chief Coordinator
Educators of the Deaf	Educational Psychologist	College of Business Administration Staff
	Project Coordinators	University Personnel & Local Businessmen
	Counselors - DVR,DPA,ESA	
	Director and Counselor-School of Trade & Tech. Educ.	
	Educators of the Deaf	

Communication skills. Graduate assistants who had completed all of the required courses and were working for certification by the American Speech and Hearing Association assisted certified staff audiologists and speech pathologists in the audiological assessments and the speech and language evaluations.

Evaluations of manual language were made by certified advisors in the area of education of the deaf. The latter also served as counselors and interpreters for the manual deaf and partially hearing from schools for the deaf.

Counseling. The Psychiatric Social Worker played a key role in the overall management of the Project. His preparation included several degrees in his specialty (C.S.W. and M.S.W.) and fourteen years experience as a social worker and counselor in neuropsychiatric hospitals and as a marriage and family counselor.

Because of the experimental aspects of the personal-social orientation and adjustment program, the selection of a key staff member to assume the professional responsibility in the planning and directing of related activities was of primary importance. The role of the Psychiatric Social Worker was flexible. It was not his function to place each student into psychotherapy--rather, it was to offer assistance to the student through a supportive and sustaining relationship so that he might continue to grow after leaving the program.

The responsibilities of the Psychiatric Social Worker were organized along the following lines:

I. Consultant Services

- A. Act in an advisory capacity to the Project Director
- B. Meet with consultants and advisors to the Project

II. Project Services

- A. Screen applicants
    1. Interview applicant
    2. interview family or other relatives
- B. Function as counselor
    1. student interviews
        - a. full-time project students
        - b. affiliate project students
    2. interviews with families and relatives
    3. interviews with house parents and employers in the transitional vocational program (interpretation of coordinator's reports)
    4. counseling of academic associates
        - a. faculty members
        - b. project personnel: supervisors, therapists, teachers, professional trainees
- C. Conduct group work sessions for full-time students
- D. Assist in orientation sessions for university faculty and administrators
- E. Serve as classroom instructor for the professional trainees
- F. Act as member of team for on-going evaluation procedures for each student
    1. evaluate and compare student interpersonal relationships by four groups in regard to:
        - a. hearing peers
        - b. deaf peers
        - c. parents
        - d. siblings
        - e. teachers
        - f. project personnel
        - g. employers

2. rate each student according to a certain characteristic:
    a. passivity--activity
    b. dependency--independence
    c. simple behavior--complex behavior
    d. shallow interest--deeper interests
    e. short-time perspectives--long-time perspectives
    f. subordination--equality
    g. lack of self awareness--control over self

3. provide group experience
    a. homogeneous
        1a. club-type activities (peers)
        2a. parties (peers)

    b. heterogenous
        1b. peer-type activity
        2b. adult type

4. study student personality growth and maturation
    a. stages of personality dynamics
    b. psychodynamics
    c. emotional development and self concept

5. record general observations and impressions
    a. strengths
    b. deterrants
    c. implications

G. Assist in vocational placement and follow-up supportive measures and evaluation

1. pre-employment contact with student and prospective employer

2. placement counseling and placement

3. performance evaluations
    a. post-placement interview with employer
    b. post-placement interview with employee

H. Analyze data for pre and post-program evaluation of change in the functioning of the full-time project students

1. provide information for final report

2. evaluate programs and overall project

3. make recommendations

Psychologists. Two clinical and two educational psychologists worked in part-time capacity with the Project. The former were experienced psychologists on the Staff at the State Hospital South. The latter were in charge of the University and the Public Schools counseling programs. The roles of the psychologists included:

1. screening of each applicant,
2. evaluation of each full-time student for intellectual and personality function and level of educational achievement,
3. assisting in determining remedial measures and needs for psychotherapy,
4. assisting the Psychiatric Social Worker in group work sessions and providing analysis of interpersonal relationships,
5. acting in advisory capacity to the Project Director and Coordinators,
6. assisting in orientation sessions for university faculty and administrators,
7. serving as classroom instructors and case reviewers for professional trainees,
8. acting as a member of interdisciplinary team for on-going evaluation procedures for each student and the project program,
9. collecting data for the pre and post-program evaluation of change in the function of the full-time project students.

Educator of the deaf. Essential to the ultimate success of the Project was the availability of the Superintendent of the Idaho State School for the Deaf and Blind and his Staff as part-time project advisors.

The Superintendent helped plan the Project, recommended students to it, visited and counseled the full-time students, assisted in some of the team evaluations, and served as one of the principal advisors to the Director.

All of the educators of the deaf, including the two Special Consultants, were certified and experienced teachers of the deaf. The staff members from the School for the Deaf acted as:

1. technical advisors in education of the deaf and partially hearing,
2. evaluators of manual skills in the full-time students,
3. counselors to the manual deaf and partially hearing, and
4. classroom instructor in manual language for the professional trainees and project personnel.

Educational Programs

Members of the Staff at the University were the teachers of the regular and restricted academic, technical and vocational curricula. They were contacted by the Project Coordinators, who then referred any unusual problems to the Project Director and advisory staff.

The following lists indicate the personnel involved in each aspect of the educational program:

Training Curricula	Educational Adjustment Units	Atypical Programs
Department Chairmen	Chief Coordinator	Area Supervisors
Faculty Academic courses Technical courses Vocational courses	Advisors in Education of Deaf Teachers Speech & Language Clinicians	Area Instructors Content Advisors On-the-job Training Supervisors Teachers Coordinators
Interpreters Partially hearing students	Interpreters Partially hearing students Coordinators Speech & Language Clinicians	Interpreters Partially hearing students Supervisors Coordinators
Tutors Faculty Student "Buddy System"		
Lecture Notes Student note-takers Taped lectures and office typists		

Orientation of classroom teachers. Lectures were given to the faculty concerning the meaning of hearing losses. Suggestions were made for ways in which they could assist the limited hearing students in their classes.

Monthly conferences were held with the teachers at the School of Trade and Technical Education during the first semester of the Grant. It was found, however, that it was much more effective to have individual rather than group meetings with the faculty members. Less time was wasted on the part of the teachers. The individual contact permitted the Coordinator or Director to offer guidance related to a specific type and degree of loss and to identify the supportive measures necessary for the individual student involved.

Several staff members in the trade and academic areas were already familiar with manual language, as were some of the members of the student body. Their assistance was valuable in the overall orientation program.

Educational adjustment units. Teachers in charge of education units were required to have an equivalent of a master's degree and experience in teaching language skills. Subject matter in the adjustment units included reading, mathematics, composition, vocabulary building, social and biological sciences, spelling, and penmanship.

Atypical programs. Specialists were employed in areas of interest for students whose abilities or disabilities indicated that they should receive training in groups not integrated with the regular students or who were participating in an exploratory program before being placed in the standard academic, technical, or vocational curricula. Persons capable of teaching a number of different skills were chosen in order to offer diverse training opportunities.

Language development and educational adjustment units were coordinated with the speech and language therapy programs.

Community Participation

Members of the community and local agencies, business, and industrialists cooperated with the University in various aspects of training and placement.

Some of the members of the community who were skilled in manual language were utilized for the training of the project staff and professional trainees. It was discovered, however, that there were many differences in the signs used by them and the Staff from the School for the Deaf, so it was decided to limit the teaching to certified instructors.

Service clubs and professional organizations. Some of the organizations cooperating with the Project were: Altrusa Club, Governor's Committee on Employment of the Handicapped, the Lions' Club, the Toastmistress Club, Red Cross, Idaho Parents and Teachers Associations, and churches of various denominations.

Local service organizations invited full-time project students to participate in their luncheon programs. The local Lions' Club assisted by helping to place students for transitional vocational experiences in the business establishments of their members. The toastmistress Club admitted one of the students to international membership.

Religious denominations. The churches encouraged students to participate in the activities of various young peoples' groups. One student was assisted financially when she was unable to sustain the cost of her board and room.

Professional Training Program

One of the major weaknesses in many of the professional training programs is lack of experience with the everyday problems of the deaf and hard of hearing populations. The project provided excellent laboratory experiences for professional trainees from many disciplines.

Participation in all aspects of the Project was available to graduate students. Undergraduates observed therapy and audited staffing sessions. Actual contact with both full-time and affiliate students was encouraged during educational and recreational activities. Tutoring was carried on by majors who had sufficient backgrounds in subjects which were presenting problems to specific project students. Lectures, courses, and orientation classes were held by Project Specialists for students in the professional training programs of Speech Pathology and Audiology, Elementary and Secondary Education, Special Education, Counseling and Testing, Psychology, and Business Administration.

Admission Procedures

Although the scope of the Project was not intended to include experimental procedures, it had been hoped initially that a control group might be found and that some experimental design might be followed.

Very early in the Project, however, it became apparent that the application of rigorous experimental procedures would curtail the flexibility of the demonstration aspects and would mean denying many capable, highly motivated and needy applicants the opportunity of participating in the program because of the impossibility of obtaining matching subjects.

It was also felt that a less exacting approach would permit the development of a prototype demonstration project having maximum inclusiveness, in contrast to a program that would have applicability in only a narrow range of educational situations and suitability for a restricted group of subjects only.

Limited hearing persons were admitted to the Project through the following procedures.

Application

Application was made by letter, telephone, or by recommendation from the Idaho State School for the Deaf and Blind, the Department of Vocational Rehabilitation, the Department of Public Assistance, family doctor, educator, or other referral sources. If the applications were not made in person, the Project Coordinator contacted the prospective student for an interview. All contacts were given both the admission form prepared by the project staff and the regular application form used by Idaho State University.

The screening and acceptance of students in the Project was carried out according to certain procedures.

Screening and Acceptance

Sources of general information. The sources of general information were birth certificates, school records, and/or interviews with the students, their families, or school authorities.

Some of the data concerning their health, other physical disabilities, childhood diseases, operations, injuries, time of onset and etiology of hearing loss, previous use of amplification, achievement levels, educational backgrounds, and intelligence quotients were also derived from these sources.

Confirmation of information. After verification of the existence of some degree of hearing loss by the audiologist, anyone with an impairment which caused him to experience difficulty in a class for normally hearing students was considered.

Pre-admission evaluations were made of general health, visual acuity, organic brain damage, motor coordination, speech reception and discrimination, benefit from amplification, expressive and receptive communication skills--oral-aural, manual, and reading and writing--educational achievement levels, intellectual functioning, emotional adjustment, personal-social backgrounds, and vocational aptitudes and experience.

Interviews with the Psychiatric Social Worker and the Project Director were scheduled. In almost every case, parents or relatives of the applicant were also interviewed. In some cases, school officials were seen. Family doctors were contacted if previous health problems were reported.

Conferences with personnel at the Department of Vocational Rehabilitation, Department of Public Assistance, Department of Public Health, and the Employment Security Agency provided vital information for the evaluation of the prospective students.

All applicants not entering the academic college were asked to take a battery of tests at the Office of Employment Security nearest their homes. In the cases of nonoral students, the Project provided an interpreter. Additional aptitude and interest tests were administered by the Counselor at the School for Trade and Technical Education. These tests varied with the needs, the interests, and abilities of the prospective students.

Admission. Past educational and/or vocational "failure" was not considered sufficient basis for refusal of admission. The decision for admission was made on the basis of test scores and interviews by the Project Director, the Psychiatric Social Worker, the Clinical Psychologist, and the Director and the Counselor at the School of Trade and Technical Education. The superintendent and Staff from the School for the Deaf served as key persons in many of the decisions related to admission of students.

References from three persons outside of the family were required.

Before any student was placed in a specific vocational program, the permission of the instructor of each course was obtained. Teachers for the atypical units were also consulted.

The final decision for the acceptance of a student on the Project or his placement in any activity was the responsibility of the Project Director.

Financial Arrangements

Financial arrangements for fees, tuition, books, tools, and board and room were handled through an appropriate agency or through family members. Board and room were covered for some students by a special allocation from Vocational Rehabilitation Administration when their families were unable to provide any financial assistance.

The Coordinator set up procedures with the bursar's office so a minimum of problems in the complicated payment procedures involving the full-time students would arise the day of registration. Although this was of great assistance to all Project students, it was especially important for the deaf students.

Housing

Arrangements were made by the Project Coordinator to meet the students upon their arrival in Pocatello. He accompanied them to their places of residence and explained their schedules for testing and registration.

Previous housing arrangements had been made for them in dormitories or approved homes. Orientation of house parents and dormitory staff had been carried out by the Coordinator. Conferences with the Dean of Students and the Deans of Men and Women had been held by the Project Director.

Registration

Pre-registration educational placement examinations, medical check-ups, and registration procedures were supervised by the Chief Coordinator and his assistants. Careful pre-planning of course assignations simplified registration procedures.

Transitional Program Placement

As the Project progressed, some students were admitted mid-semester. These students were temporarily placed in the programs for atypical students or in units of Exploratory Skills, educational adjustment and transitional vocational experiences were provided until they could be assigned to regular classes.

Health Services

General health services. A medical examination was required for admission to any of the university programs. Health services were available to all full-time project students whether they were registered in regular programs or atypical units.

Otological services. All project students were seen at least once annually by the Otologist who served as Medical Director at the Speech and Hearing Center. In addition, students with chronic and acute otitis media were under constant surveillance by him.

Before any educational placement involving excessive background noise was made, the advice of the Otologist was sought.

Opthalmological services. The visual acuity was checked by the students' family doctors or specialists. Severe cases of visual disability were treated conjointly by the Consulting Ophthalmologist to the Speech and Hearing Center and the student's own physician.

Communication Evaluations

Audiological assessments. The initial screening of prospective subjects for the program was followed by an audiological assessment including pure tone testing by air and bone conduction, speech reception threshold and discrimination scores, and a hearing aid evaluation. Recommendations were made to the family or agency involved regarding the desirability of amplification. If it was considered appropriate, aural rehabiliation programs were instituted.

Frequent audiologic re-checks were made throughout the students' time in the Project.

Characteristics of Project Students

Groups consisting of substantial numbers of homogeneous limited hearing persons were impossible to obtain because of the sparsely-populated area from which the project students were accepted. The characteristics of the applicants included many variables such as type and degree of loss, age at onset, educational background, mode of communication, level of language ability, and degree of speech development.

Criteria for acceptance. When the decision to broaden the criteria for acceptance was taken, the principle variable, and the one upon which the ultimate groupings were set up, was the degree of speech and language deficit evidenced by each student. Selection of candidates was not limited to test scores, judgmental bases, past performance or initial performance on the Project.

It was felt that the lack of guidelines for such a program did not justify setting up arbitrary cut-off points for admission criteria. Other than qualifying within "normal limits" in respect to intellectual functioning and emotional adjustment, anyone with a hearing impairment who was able to compete satisfactorily with normally hearing peers was accepted. No upper limit was placed on chronological age. The lower cut-off was sixteen. By not restricting the type of student, the project staff accepted the challenge of providing measures appropriate to many types and degrees of hearing impairment.

Since the instruments for evaluating the emotional stability and intellectual potential of the deaf still lacked refinement and trained personnel to interpret the results was almost impossible to find, some leniency was allowed in regard to the term, "normal limits." In some cases, normalacy was interpreted to include persons whose scores would not have been considered "normal" in a normally hearing population.

Characteristics of Full-Time Project Groups. For the basis of discussion of the comprehensive supportive programs, the full-time students were divided into the following groups:

Group A: (N--8) Deaf students with congenital or early childhood losses and severe speech and language deficiencies

Group B: (N--10) Partially hearing students with congenital or early childhood losses and mild-to-moderate speech deficiencies and moderate language deficiencies

Group C: (N--7) Deaf and hard of hearing students with congenital or early childhood losses and mild speech and language deficiencies

Group D: (N--3) Deaf and hard of hearing students with adventitious losses in adulthood and no related speech and language deficiencies.

Other project populations. Part-time students were classified as:

1. affiliates (N--9)
2. tested and counseled only (N--4)

Selective factors for placement and achievement. Emphasis was placed on the language deficiencies as the most selective factor in educational placement. A second, and related aspect, was academic achievement level. Overall success in the training program, and ultimately, the satisfactoriness of the vocational placement was greatly dependent upon the degree of emotional maturity and motivation developed by each student.

With the intention of providing comprehensive supportive programs, the areas of communication, education, orientation, and vocation were selected for intensive study.

The above groupings also lent themselves to consideration in regard to professional training and estimates of cost for providing additional vocational training to a heterogeneous population of limited hearing persons in an existing educational facility.

General Information

Number of applicants. Sixty-five persons made inquiries concerning the program. Of this number, twenty-eight became full-time students and nine, affiliates. Four were given only evaluative tests and interviews. Ten persons made inquiries, some of which concerned the possibility of becoming students during the 1965-66 school year.

Total number of students. The cumulative total for students in the Project was 65. See Table 7 for the individual and cumulative counts.

TABLE 7

TOTALS FOR STUDENTS IN THE PROJECT

Total Number of Different Students During the Three-Year Period		Total Enrollment of Students During the Three-Year Period	
Type of Student	No.	Type of Student	No.
Full-time students	28	Full-time students	45
Affiliates	9	Affiliates	16
Tested & Counselled	4	Tested & Counseled	4
Total	41	Grand Total	65

Sources of referral. The applicants were recommended by the Department of Vocational Rehabilitation, the Idaho School for the Deaf and Blind, the

the Public Health Units, the Department of Public Assistance, speech and hearing therapists, doctors, educators, ministers, and families and friends of the applicants.

Chronological age. The project students represented a spread of forty-one years' difference in chronological age at the time of admission. The youngest full-time student was eighteen and the oldest, fifty-six years of age. The affiliates ranged from fifteen to fifty-three years of age. Data to support chronological age was taken from school records and birth certificates whenever they were available. See Table 8 for the age range of the full-time students.

TABLE 8

CHRONOLOGICAL AGE OF THE FULL-TIME STUDENTS

Chronological Age	18-19	20-23	31-40	41-50	51-60
Number of students	10	13	2	2	1

Time on the Project. The Project was initiated July 1, 1962, and terminated on June 30, 1965. The first students entered the educational programs the early part of September, 1962, although evaluation and interviewing of applicants began during the summer prior to that time.

Time on the Project was reported according to attendance in the academic and vocational training programs, not from the date of application. Nine months was considered the equivalent to one year's training.

Full-time students spent from one-half year to three years in the Project. The number of years was determined by the type of program in which each student was enrolled. Some of the students had not finished their studies when the Project ended, so the statistics did not reflect the actual number of years needed to complete training programs for limited hearing students. The average of years for the full-time students on the Project was 1.6. The time the affiliates received speech and hearing therapy ranged from two months to two years. Table 9 reflects time in the Project for the various types of students.

TABLE 9

TIME ON THE PROJECT

Years	Full-time Students	Affiliates	Total
Less than 1 academic year	1	4	5
1 to 1½ academic years	12	2	14
2 academic years	14	3	17
3 academic years	1	0	1
Totals	28	9	37

Yearly distribution of students. Table 10 gives the distribution of full-time students and affiliates for each year of the Project.

TABLE 10

YEARLY DISTRIBUTION OF STUDENTS

New Students Each Year	No.		Total Number of Students Each Year	No.
First Year				
Full-time students	10		Full-time students	10
Affiliates	5		Affiliates	5
Total	15		Total	15
Second Year				
Full-time students	13		Full-time students	19
Affiliates	2		Affiliates	5
Total	15		Total	24
Third Year				
Full-time students	5		Full-time students	16
Affiliates	2		Affiliates	6
Total	7		Total	22

Sex of the students. The total sample included 22 males and 19 females. Of these, 16 males and 12 females were full-time students. Table 11 gives the number of students by sex.

TABLE 11

SEX OF STUDENTS

Category	Males	Females	Total
Full-time students	16	12	28
Affiliates	4	5	9
Tested and counseled	2	2	4
Total	22	19	41

General health aspects. Of the full-time students, two were rated as having fair health and twenty-six as good. Pre-program injuries included one head injury and one broken wrist. Table 12 gives the pre-program diseases which were reported by the students.

TABLE 12

PRE-PROGRAM DISEASES REPORTED BY THE STUDENTS

Disease	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Arthritis	0	0	1	0	1
Cancer	0	0	1	0	1
Chicken pox	0	5	4	0	9
Chronic Cough	1	0	0	1	2
Chronic Sinus	0	1	0	0	1
Hepatitis	0	1	0	0	1
Meningitis	2	2	1	1	6
Mumps	0	6	4	1	11
Otitis Media					
Occasional	5	6	2	0	13
Chronic	1	1	1	0	3
Not reported	0	0	0	2	2
Pneumonia	0	1	0	0	1
Rheumatic Fever	0	1	0	0	1
Rubella	6	9	5	1	21
Scarlet Fever	0	1	1	0	2
Whooping Cough	0	1	0	0	1
Not reported	1	0	0	2	3

Operations. Fifteen students reported adenoidectomies and eighteen stated that they had had tonsilectomies.

Motor coordination. One full-time student displayed a mild motor incoordination. One of the affiliates suffered from a severe neuromuscular disability.

Other physical disabilities. One student had a tubercular elbow. Two complained of skin eruptions, and one had a repaired cleft palate and dwarfism.

Organic brain damage. The protocols of the Bender Gestalt Test revealed a high prevalence of brain damage. Although interpretations of Bender Gestalts are highly subjective, these data, medical histories, neurological examinations, and extensive clinical observation yielded a diagnosis of minimal brain damage in at least one third of the students. This finding was in keeping with recent research on psychoneurological correlates of major etiologies of hearing loss.

Audiological Impairments

Etiology of hearing loss. In a number of cases, the etiology was uncertain, but according to the full-time students and their families, ten identified the cause as disease, two as fever, two as birth injury, three as chronic otitis media, one as underdeveloped auditory nerve, and three as injury to the ear--foreign object, head blow, and gun blast. One of the affiliates evidenced a non-organic hearing loss. Table 13 gives the reported etiology of hearing loss as reported by the full-time students.

TABLE 13

REPORTED ETIOLOGY OF HEARING LOSS

Characteristics	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Birth Injury	1	1	0	0	2
Chronic Otitis Media	1	1	1	0	3
Disease	3	4	2	1	10
Meningitis	2	2	1	1	6
Pneumonia	0	1	0	0	1
Rubella	1	1	0	0	2
Scarlet fever	0	0	1	0	1
Fever	1	1	0	0	2
Injury to Ear	0	2	1	0	3
Hairpin	0	1	0	0	1
Head Blow	0	1	0	0	1
Gun Blast	0	0	1	0	1
Underdeveloped Auditory Nerve	1	0	0	0	1
Unknown	1	1	3	0	5
Not Reported	0	0	0	2	2

Degree of hearing loss. Twelve students were rated as deaf with losses averaging over 80 dB (500-2000 c/s, ASA 1951), fifteen were rated as moderate-to-severely hard of hearing with losses averaging between thirty and eighty dB and one as mildly hard of hearing with an average of less than 20 dB. Table 14 gives the degree of hearing loss for all Project groups.

Age at onset. Seventeen full-time students reported their hearing losses as prelingual, eight as being congenital, Eight incurred losses in early childhood, but postlingually, one in adolescence, one in early adulthood, and one in middle adulthood. At least six of the losses were progressive. Table 15 gives the time of onset of hearing loss for all Project groups.

Previous use of amplification. Thirteen full-time students reported no use of amplification before entering the Project. Twelve had had hearing aids but had used them only occasionally. Three students had used them extensively. Table 16 shows pre and post-project use of amplification.

The eight affiliates had been fitted with hearing aids before applying to the Project. This included the student with nonorganic hearing loss.

TABLE 14

DEGREE OF HEARING LOSS (ASA 1951)

Hearing Loss	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
BEA 500-2000 c/s					
Less than 20	0	0	1	0	1
20 - 29 dB	0	0	0	0	0
30 - 39 dB	0	1	0	0	1
40 - 49 dB	0	2	2	0	4
50 - 59 dB	0	4	1	2	7
60 - 69 dB	0	3	0	0	3
70 - 79 dB	0	0	0	0	0
80 - 89 dB	1	0	2	1	4
90 - 99 dB	2	0	1	0	3
No Response	5	0	0	0	5
SRT Aided					
Less than 10 dB	0	2	3	1	6
10 - 19 dB	0	0	0	0	0
20 - 29 dB	0	6	0	0	6
30 - 39 dB	0	2	1	2	5
40 - 49 dB	0	0	1	0	1
50 - 59 dB	0	0	0	0	0
60 - 69 dB	0	0	1	0	1
Over 70 dB	0	0	0	0	0
Awareness	8	0	1	0	9
PB - Aided					
Less than 20%	8	0	1	0	9
20 - 29%	0	0	0	1	1
30 - 39%	0	0	0	1	1
40 - 49%	0	1	0	0	1
50 - 59%	0	1	0	0	1
60 - 69%	0	2	3	0	5
70 - 79%	0	2	2	0	4
80 - 89%	0	4	1	0	5
Over 90%	0	0	0	1	1

Visual acuity. Vision is of the greatest importance to deaf persons. Speech reading may be their only avenue of receiving oral communication. Visual pathology and deafness are often associated.

TABLE 15

AGE AT ONSET OF HEARING LOSS

Onset	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Congenital	3	2	3	0	8
Before 3 yrs. of age	4	7	1	0	12
3 yrs. of age or after	1	0	3	0	4
Adolescence	0	0	0	1	1
Early adulthood	0	0	0	1	1
Middle adulthood	0	0	0	1	1
Unknown	0	0	1	0	1
Progressive	0	0	4	2	6

TABLE 16

USE OF AMPLIFICATION

Amplification	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Pre-project					
No hearing aid	5	3	3	2	13
Part-time use	3	7	2	0	12
Full-time use	0	0	2	1	3
During Project					
Benefited[a]	5	10	6	2	23
No benefit	3	0	1	0	4
No need for aid[b]	0	0	0	1	1

[a] Not useful for discrimination of speech in some cases

[b] Progressive losses of mild-to moderate degree.

Applicants were not eliminated because of any physical disability in addition to deafness. Visual impairments presented one of the concomitant difficulties which affected the planning of the training programs for three of the full-time students since their visual deficits were only partially correctable. Four were rated as having severe impairments, twelve with moderate impairments, eleven with slight impairments, and one with normal vision. Three students had visual disabilities which were only partially correctable. All the remaining students had satisfactory correction.

Structural adequacy for speech. All subjects revealed structural adequacy of the vocal mechanism for the development of oral communication skills. One of the full-time students had undergone a pharyngeal flap operation for the repair of a cleft palate. The results were satisfactory for speech development.

Expressive Communication Skills

Interpretation of scores. Ratings were interpreted in regard to functional aspects: poor was considered as unsatisfactory for conversational or educational purposes; fair referred to students who barely achieved satisfactory usage; and good was used for effective expression of knowledge and/or skills. The latter did not imply that the student did not have need for further improvement.

Respiration. In respect to respiration, full-time students were rated at admission in the following manner: five as poor, nine as fair, and fourteen as good.

Phonation. The phonatory basis of communication was divided into areas of pitch, intensity, and timbre.

Evaluations for pitch revealed that fifteen were considered as having poor scores, five had fair, and eight had good.

Intensity ratings included fourteen poor, two fair, and twelve good.

Diagnostic impressions of timbre noted fifteen students with poor, five with fair, and eight with good quality.

Resonation. Resonation problems were described as twelve having poor, nine having fair, and seven students having good scores.

Articulation. Results of the articulation testing showed eleven students with poor ratings, six with fair, and eleven with good.

Connected speech. Length of sentence was interpreted as the following: eight were scored as poor, five as fair, and fifteen as good.

Written language. There was one who was unable to express himself, four were poor, thirteen were fair, and ten had good language expression.

Receptive Communication Skills

Auditory discrimination. Pre-program testing showed twenty-four students with aided discrimination scores of less than seventy per cent, nine between seventy and ninety per cent, and one with over ninety per cent.

Speech reading. Speech reading was rated as poor for three students, fair for fourteen, and good for eleven.

Reading. One student was a non-reader. Four were rated as poor, ten as fair, and thirteen as good at the inception of the Project.

Manual Skills

Those students using manual skills were equally skilled in receiving and sending finger spelling and signs. Ten students had no manual skills; one was poor; and eighteen were highly skilled.

Educational Background

Full-time students were admitted with the following backgrounds.

(1) graduates from state schools for the deaf who did not attend Gallaudet College because they were not able to meet the entrance requirements in regard to over-all educational achievement,

(2) graduates from state schools for the deaf who did not attend Gallaudet College because they did not have a hearing impairment severe enough to qualify, but who could not have successfully attended existing state and regional programs for hearing students without some help specifically designed to overcome their problems in communication,

(3) non-graduates who were not working up to their potential because of inadequate training and whose hearing impairment made it difficult or impossible to receive appropriate educational and vocational preparation without additional help in communication and personal adjustment, and

(4) persons with adventitious and progressive hearing losses who were in need of a specially adapted program because they had not developed adequate speech reading ability or who did not have enough residual hearing to compensate satisfactorily.

The affiliate groups consisted of the following:

(1) students who were already attending Idaho State University and who had severe hearing losses but whose aural rehabilitation and communication skills permitted them to succeed reasonable well in a hearing population without the adapatations necessary for the deaf subjects. (During the first year, these students participated in the transition programs designed for the improvement of communication skills and personal-social orientation. Thereafter, they were accepted as full-time project students in order to provide them with sufficient supportive measures to enable them to enter types of training programs more commensurate with their abilities.)

(2) post-secondary-age students who entered the transition program for improved communication skills and remedial classes in basic subjects with the intention of entering the full-time group the following year,

(3) post-secondary-age students with multiple handicaps who lived at home but who took advantage of the transition program with the intent of eventually qualifying for the full-time category,

(4) pre-college-age students (13-19 years of age) who participated in some of the same communication aspects as affiliates described under (2), and

(5) adults who were employed at the time, but who wished to improve their communication in order to better their vocational placement.

Grade levels. One student reported no schooling, one had attended one-and-a-half-years, one completed elementary school, and one junior high school. Seventeen received diplomas from the high school department of the State School for the Deaf, and two had been awarded bachelors' degrees. It was evident, therefore, that the educational backgrounds ranged from illiteracy to post-bachelor-level candidates. The mean number of pre-project school years was 10.8 for the entire group of full-time students. Table 17 gives the grade levels of all the Project groups.

The age groups of 18 to 21 years at Gallaudet left after 10.0 to 11.4 years' average time in school previous to entrance at Gallaudet. Four students within the chonological age range comparable to Gallaudet students were lower and two were higher.

TABLE 17

GRADE LEVELS OF STUDENTS ENTERING PROJECT

Level Completed	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Not Recorded	1	0	0	0	1
1½ years	0	0	1	0	1
Elementary	0	0	1	0	1
Junior High	0	0	0	1	1
Deaf High School	7	10	0	0	17
Normally Hearing High School	0	0	4	1	5
B.A.	0	0	1	1	2

Residence. Fourteen students lived at home and twenty-one at the School for the Deaf during elementary and secondary schooling. These figures represent students whose background included both types of residence.

The highest number of years spent in a school for the deaf was fourteen. Two students had been admitted and dismissed from Gallaudet. Sixteen had attended schools for normally hearing students. The range was from one-half year to sixteen years. Three had attended special classes for the hard of hearing during their pre-school years. The range was from two to two-and-a-half years.in special classes. Table 18 gives the number of years spent in each type of school for the Project groups.

TABLE 18

TYPES OF SCHOOLS REPRESENTED IN PRE-PROJECT ATTENDANCE

Type of School	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Normally Hearing					
Range	0	1½-8	½-14	8-16	½-16
Mean*	1 @ 7	7 @ 6	7 @ 10.3	3 @ 12	16 @ 2
Special Class					
Range	0	0	0	0	0 - 3
Mean*	1 @ 3	0	1 @ 2	0	2 - 2½
Deaf					
Range	3 - 14	3 - 14	1 - 2	0	0 - 14
Mean*	8 @ 8.7	10 @ 8	3 @ 1.3	0	21 @ 4.5
Mean (Total)	10	10.7	11.13	12	10.8

*Reported in terms of number of students at number of years in attendance.

Achievement levels. Table 17 reflects the academic achievement levels of the various project groups. These levels may be compared with a 9.7 battery average on the Stanford Achievement Test reported for students admitted to Gallaudet College in 1963, according to the Education of the Deaf Report (1965).

The educational achievement levels ranged from total illiteracy to college level on the Stanford Achievement Test. The median was fifth grade and the mean was 6.2. Two of the students were placed in graduate studies at the University. See Table 19 for achievement levels for Project groups.

Scholastic average. Twenty-four of the twenty-eight reported grade averages of C to B. Two had been A students.

The heterogeneity of the project population shown in Table 20 was apparent not only in the wide spectrum of degrees and types of hearing loss but was also evident in previous educational preparation, achievement levels, and backgrounds.

Intellectual Functioning.

The broad spread of intellectual functioning of the project students furnished important information for persons interested in placing limited hearing students in existing educational facilities. With the exception of two full-time students whose intellectual assessments were reported with full-scale scores, all students were given the performance IQ tests only. Eight received scores indicating superior intelligence, four above average, six within normal limits, six below average, and four within the educable range.

The range of intellectual functioning was 8--136, the median was 107, and the mean was 112.

TABLE 19

PRE-PROJECT EDUCATIONAL ACHIEVEMENT LEVELS

Grade Level on Stanford Achievement	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Non-reader/non-writer	1	0	0	0	1
1 - 2	0	0	1	0	1
3 - 4	2	1	0	0	3
5 - 6	5	4	1	1	11
7 - 8	0	3	1	1	5
9 - 10	0	2	3	0	5
11 - 12	0	0	1	1*	2
Range	0 - 5	4 - 9	3 - 12	5 - 12*	0 - 12
Median	5	6	9	8	5
Mean	3.5	6.4	8	8.3	6.2

*One student entered at a Master's level. She is reported as grade 12 in this Table.

TABLE 20

PRE-PROJECT SCHOLASTIC AVERAGES

Letter Grade Average	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
A	0	0	1	1	2
B	3	5	3	0	11
C	4	5	2	1	12
D	0	0	0	1	1
Not reported	1	0	1	0	2

Socio-economic Status

Socio-economic status was determined early in the student's initial interview with the Psychiatric Social Worker. The economic status was ranked according to poor, fair, or good and was determined by the father's/mother's occupation and educational background. It was primarily related to what material advantages the famih had at its disposal to help the student financially. It was not necessarily related to love, acceptance, and family closeness.

TABLE 21

INTELLECTUAL FUNCTIONING

Test Scores	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
60 - 69	0	0	0	0	0
70 - 79	0	0	0	0	0
80 - 89	1	2	1	0	4
90 - 99	3	2	0	1	6
100 - 109	1	3	2	0	6
110 - 119	1	0	3	0	4
120 - 129	1	2	1	1	5
130 - 139	1	1	0	0	2
Not reported	0	0	0	1*	1
Range	80 - 136	84 - 133	80 - 126	99 - 120	80 - 136
Median	107	103	110	120	107
Mean	107	105	109.3	113	112

*Estimated IQ of 120 or over--student had "A" average in graduate studies.

In reviewing each student individually, it was noted that, as a rule, the student from families in the upper median and median middle class did tend to be more outgoing and adaptable than the students who were financially depressed and had not had extensive social-cultural advantages.

It was interesting to note that despite the varied socio-economic status of each, once the students were given support, encouragement, and guidance so they might earn money for their own needs, most of them showed significant social and emotional growth. Without the impetus provided by the Project to help the students break from their old familial ties, however, the question remains whether many of the congenitally deaf and partially hearing students would ever have been exposed to the demands and/or opportunities of the normally hearing world.

Many of the applicants came from families with low socio-economic status and were assisted by the Department of Vocational Rehabilitation and Public Assistance.

The parents of the students represented a broad scope of educational and vocational backgrounds. Two were professionals. Several students came from homes broken by death or divorce. Various religious backgrounds were represented.

Emotional Adjustment

Psychological functioning, though difficult to assess in a limited hearing population, revealed several schizoid personalities, a number of cases of severe impulse control disorders, and one schizophrenic girl. Many of the students exhibited stable personality structures.

Low reading scores and lack of good expressive language made it difficult to secure adequate test results.

Reasons for entering the project program. The manual deaf and partially hearing students entered because they were advised to do so by the Superintendent of the School for the Deaf and his Staff. The oral deaf and hard of hearing were encouraged by their families and agencies. Members of Group D came for widely differing reasons. Only two out of the group of twenty-eight had families which did not encourage them to come. Only one student did not want to participate but was finally convinced by her friends.

Table 22 gives in very general terms some of the contrasting attitudes of the students in the four groups.

TABLE 22

PRE-PROGRAM ORIENTATION AND ADJUSTMENT CHARACTERISTICS

Characteristic	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)
Self-concept & identification	Manual deaf Rejected N/R	Manual deaf Rejected N/H	Rejected Manual Deaf	Rejected Manual Deaf
Attitude toward own loss	Acceptance	Acceptance	Mixed	Rejected
Desire to improve communication	Little	Fair	Good	Fair
Attitude toward studies	Followed other deaf selections	Followed other deaf selections	Listened to counseling	Unrealistic
Attitude toward Sup. Edu.	Rejection	Rejection	Rejection	Acceptance
Social maturity	Pre-adolescent	Adolescent	Appropriate	Appropriate
Dependence	Dependent	Dependent	Independent	Independent
Concern for others	Little	Little	Little	Little
Industry	Little	Little	Good	Fair
Initiative	Mixed	Moderate	Mixed	Moderate
Motivation	Low for majority	Low for majority	High for majority	High
Leadership	Little	Much	Little	Little
Goals	Short-range	Short-range	Long-range	Long-range

Four of the full-time students were married before admission to the Project. One was separated and three lived with their spouses. Three lived with grandparents, one with relatives. One was working for board and room in a nursing home. Three students had children.

Residency

During the first two years of the Project, only Idaho residents were accepted. Several out-of-state students joined the group the third year.

Previous Vocational Experience

Four students worked before the onset of their hearing disability, and twenty-five held some type of position after the occurrence of their hearing loss. Only one had been discharged because of the disability. This student had been a classroom teacher.

TABLE 23

HEARING DISABILITY RELATED TO JOB PLACEMENT

Relationship of Job Placement to Working Disability	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Worked before/after Onset of Disability					
Before	0	0	1	3	4
After	7	8	5	2	22
Does not apply	1	0	1	0	2
Ever Discharged Because of Disability					
Yes	0	0	0	1	1
No	7	6	6	2	21
Does not apply	1	4	1	0	6

Some of the students had been dissatisfied with their employment and had been re-trained for other occupations. The areas chosen for the re-training had not been satisfactory in two of the cases.

TABLE 24

PRE-PROJECT VOCATIONAL PLACEMENT

Vocation	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Professional					
Teacher	0	0	0	1	1
Clerical					
General Office	0	0	1	0	1
Service Occupations					
Domestic service	1	3	2	0	6
Personal service	0	1	0	0	1
Building service	0	0	1	0	1
Agricultural					
Farm hands	6	1	1	2	10
Skilled occupation					
Cabinet maker	0	1	0	0	1
Semi-skilled occupation					
Dry cleaning	0	1	0	0	1
Unskilled occupation					
Dishwashing	0	1	0	0	1
Factory	0	0	1	0	1

Evaluation Procedures

Evaluation of Supportive Measures

Full-time project students were evaluated for various aspects pertinent to each of four areas: communication, education, orientation, and vocation. Measurements were made in respect to (1) pre and post-program levels of functioning, (2) rate of improvement, (3) satisfactory functioning level at admission, and (4) need for additional help at termination of time on the Project.

Pre and post-program levels of functioning. The results of the battery of tests given to the students at the beginning and at the termination of their time on the program were scored, reported, and evaluated in comparison with scores expected from normally hearing persons. These scores were assigned ratings, and a comparison of the pre and post levels of functioning was used to evaluate the effect of participation in the program.

The determination of the relationship between the scores and assigned ratings was made by the Project Director, Psychiatric Social Worker, Educators of the Deaf, Director of the School of Trade and Technical Education, the Coordinators, Supervisors, Clinicians, and Teachers.

Rate of improvement. Rate of improvement was a judgmental rating made by selected members of the Project Staff, Advisors from the area of education of the deaf and Consultants. These persons were selected because of their knowledge of the implications of the various impairments and the difficulties involved in improving the level of functioning.

Ratings similar to the ones used in the pre and post-test batteries were assigned according to the amount of effort set forth and achievement made in light of each student's problems and potential.

Satisfactory functioning level at admission. The initial test batteries showed some students comparing satisfactorily with normally hearing students. This, for the most part, applied to those who were eventually classified as the hard of hearing group or those who had become adventitiously deaf in adulthood.

The figure for the number of students classified as satisfactory at admission was reflected in the number given as satisfactory at termination unless some deterioration in skills had taken place. This possibility had to be kept in mind since persons with progressive losses and with some degree of emotional problems were accepted on the Project.

Need for additional help at termination of Project. Although a five-point scale was inherent in the rating procedure, the levels of "excellent" and "non-functional" are not listed. (The non-functional aspect was stated clearly only in regard to the illiterate member of Group A.) The good, or satisfactory, rating was defined as adequate for the individual's educational, social, and vocational placements, but it was not indicative, necessarily, that no further improvement was possible.

Satisfactory functioning level at admission and need for additional help at termination of Project were rated by the same group of evaluators experienced in the area of limited hearing who had helped report the pre-program levels of function.

Rating scale. Ratings were described in relationship to scores and change in function as:

1. satisfactory--good
2. needing improvement--fair, and
3. unsatisfactory--poor.

Ultimately, the evaluation of the Project was made on the basis of CHANGE noted in the personal, social, and vocational FUNCTIONING as shown by the individual students, different groups, and by the body of full-time students themselves.

Means of securing individual ratings. As stated previously, the following sources were used for pre-program assessments of individual students:

1. scores from previous institutional records,
2. pre and post-program battery of tests and interviews,
3. discussions and ratings at staffings,
4. questionnaires and checklists, and
5. interviews with teachers and employers.

Evaluation of Supportive Program in Communication

Functional auditory discrimination. Auditory discrimination was tested with and without amplification. Many of the students had not made extensive use of hearing aids and demonstrated poor discriminatory ability for speech sounds. Recommendations for amplification and intensive auditory training were given and followed up.

As the need for the improvement of oral-aural skills in the educational, social, and transitional vocational environment of normally hearing persons became poignantly apparent, greater motivation was displayed by the partially hearing students and improved use of auditory cues was evidenced.

The students were rated as satisfactory, unsatisfactory, or need for further improvement in auditory skills depending upon any apparent improvement in the functional use of listening skills. The change in functional use was not always measurable in the sound room testing situation.

Verbal and manual skills. Evaluations of structural adequacy for speech, modes of communication, and the effectiveness of oral and manual skills were made by speech clinicians and educators of the deaf.

The oral deaf and hard of hearing who had not attended schools for the deaf were not familiar with manual language and, for the most part, they were uninterested in learning it.

The bases of speech--respiration, phonation, resonation, and articulation--were assessed. Terms used for describing voice quality were limited to harsh, nasal, and breathy. Pitch was rated as too high or too low; intensity was checked as too loud or too soft.

Articulation, language, and vocabulary were tested by the Templin (1957) battery which included articulation and sentence development and the Ammons Full Range Picture Vocabulary Test (1966).

Speech reading. Two speech reading tests were used, one an experimental filmed test and one the Utley (1944) Lip Reading Test. The prelingually deaf students were unable to respond to the broad concepts involved in the material; the recently deaf and hard of hearing were unable to speech read the material at all. Only the hard of hearing and the partially deaf who had been utilizing speech reading for a number of years were able to score on these tests.

It was felt that there was too much disparity in the backgrounds of the students to try to interpret their ability and its relationship to success in the Project on the basis of available speech reading tests. Informal, individualized speech reading material was prepared for each student. The subject matter employed was highly familiar to that student so that some estimate could be gained of his particular degree of development in the area of speech reading.

Rating procedures for receptive and expressive communication skills. Scores of receptive and expressive communication skills were interpreted in light of expectations for normally hearing students. Ratings were assigned in the following manner: good (satisfactory for most communication needs), fair (usually satisfactory but needing improvement), and poor (unsatisfactory for ordinary communicative purposes.)

The following aspects were considered:

1. greater intelligibility and lack of attention-getting deficits occurring in oral expression,
2. improved functional auditory discrimination and speech reading skills,
3. acceptance of amplification, if beneficial, and
4. functional adequacy of language development in oral, written, and printed forms as shown by competency in the classroom, on the job, and in the social milieu.

Educational Evaluations

The scores from the Stanford Achievement Test (1966) which was given as a part of the evaluation battery and previous test scores available from the students' educational records were reported to the project staff as aids in determining educational placement.

Screening procedures aimed at assisting the educational adjustment teachers were carried out in the areas of reading, mathematics, composition, and spelling.

Students entering the undergraduate and graduate academic programs were required to take the regular entrance examinations and graduate record examinations.

The Supervisor of the Exploratory Skills Unit screened prospective students for motor coordination.

The following aspects were considered for evaluation of CHANGE in FUNCTIONING for each student:

1. improved reading, writing, and arithmetic skills,
2. greater knowledge in the fields of literature, history, science, and current events,
3. effective learning of new information needed in regular vocational and academic courses,
4. broader understanding of data relevant to living in an adult society of normally hearing peers,
5. ability to perform skills in various academic areas shown by improved comprehension of materials at higher levels in graded textbooks,
6. application of knowledge to daily living as observed by house parents, coordinators, and counselors,
7. development of curiosity and desire to continue to improve own knowledge, and
8. comparison with previous level of vocational preparation.

Psychological Assessments

Selected tests from a psychological battery including the Bender Visual Motor Gestalt (1966), the Rotter Incomplete Sentences (1966), the Minnesota Multiphasic Personality Inventory (1966), the Rorschach (1966), the Weschler Adult Intelligence Scale (1966), the Leiter International Performance Scale (1955), or the Chicago Nonverbal Examination (1966), and the Draw-a-Person Test (1966) were administered depending on the students communication skills and evidence of psychological disturbance.

The results of the highly verbal tests were inconclusive, and the ratings in many cases had to be made on the basis of empirical evidence. The material gathered by interviews with the Psychiatric Social Worker and the data from families, friends, and former school authorities provided what appeared to be a more realistic picture of the ability to function than did the formalized psychodiagnostic procedures. Part of the difficulties in testing were due to the inappropriateness of many psychological tests for prelingually deaf subjects.

To this data was added the material gathered weekly from teachers, house parents, and project staff.

The Psychiatric Social Worker described student and family interviews in the following manner:

Students were interviewed alone and with their family members conjointly so that differences could be noted in various family interactions. For example, an overprotective parent would feel he had to answer questions directed to the student, a dominating parent might stress the student's weak points as if to consciously keep him a cripple. A philosophical father might tell how his son had been taught to rise above his handicap. All of these things were noted as weaknesses and strengths in evaluating the student's total personality potential.

The detailed interviews consisted of background data in the areas of the student's reaction and adjustment to people and his environment. What was his reasoning in wanting to come to school. How did he relate to his siblings? Which one of his parents did he feel the closest to? What judgment did he show in handling money? Had he ever held a job? Did he make friends easily? Had he ever shown initiative in anything or did he simply expect to be given to? How did he feel other people, including his family, saw him? Did he like himself? What were his hopes and aspirations? Were they realistic?

It was possible to clinically observe each student and family member and note their verbal and non-verbal responses to the stimuli of the interview situation. Each interview was approached consistently, with a similar format of questions; however, the interviewing technique differed according to the unique differences of each student.

Improved personal-social orientation was judged by:

1. increased understanding and acceptance
    a. of the limited hearing students by the normally hearing staff and students of the training facility and by the business community,
    b. of the normally hearing contacts by the limited hearing students, and
    c. of the various limited hearing groups and individuals by the other limited hearing groups and individuals presenting dissimilar problems and distinct modes of communication;

2. development of greater personal-social maturity on part of the individual student in relationships with
    a. his family and peers, and
    b. specific teachers, clinicians, administrators, and counselors;

3. recognition of the importance of
    a. his own particular abilities and disabilities,
    b. the need for long term planning, the inappropriateness of demanding immediate reward, and
    c. the awareness of the opportunity, choice and availability of resources and placements for the well-trained persons; and

4. appreciation on the part of society regarding
    a. the talent which has gone undeveloped in limited hearing persons,
    b. the need for understanding problems presented by a hearing loss,
    c. the meaning to the economy in terms of productivity, availability of special skills, and the cost of supporting untrained persons, and
    d. the need to provide training programs with appropriate supportive measures so that the ever-increasing numbers of limited hearing persons may attend and better serve their country, personally, socially, and vocationally.

Measurement of change was based on:

1. pre and post-program questionnaires, check lists, interviews, and conferences with parents and former teachers in order to estimate levels of psychological development,

2. psychological evaluations pre and post-program,

3. interim and post-program staffings,

4. behavior in pre-program, transitional vocational placements, and post program placements as indicated in employer interviews and questionnaires,

5. analysis of sociograms, and

6. committee evaluation of attitudes and ability to make realistic plans.

Evaluation of Vocational Training and Placement

Based partially on the results of the battery of tests given each student and largely upon the observation and initial functioning on the Project, as well as the student's interests, vocational training selections were made in academic, technical, trade, or atypical programs. Supportive measures were provided in the areas of communication, education, orientation, and transitional vocational experience.

The value and impact of the vocational preparation and placement of the limited hearing students were rated by comparing post-program placement with:

1. pre-program vocational preparation and placement, and

2. national placement statistics for similar groups of limited hearing persons.

Evaluation by Groups

Although the summation of the pre and post-program test scores and ratings were available for the evaluation of CHANGE in FUNCTIONING of individual limited hearing students, the Project Groups needed assessment from the point of view of "certain types" of limited hearing persons and their personal, social, and vocational relationships with normally hearing persons.

It was felt that the best qualified judges were persons who were uninitiated in the area of education of the deaf and partially hearing or the aural rehabilitation of the hard of hearing. These persons were selected from administrators, faculty members, employers, and advisors who reported their observations, experiences, and evaluations of the limited hearing students as representative of a "certain type" of limited hearing person.

Educators of the deaf, audiologists, and communicologists were intentionally left out of this group evaluation procedure. It was felt that they, precisely because of their greater knowledge of the problems to be overcome and sensitivity to the tremendous accomplishment even a small gain might represent in some cases, might be more biased in favor of the limited hearing student than the unsophisticated evaluators who saw them only in comparison with normally hearing students.

The fact that a lay person conceded that a deaf person had improved during his time on the program was a credit to the educators of the deaf who had been able to provide a background adequate enough for the members of the Project Staff to place the prelingually deaf and partially hearing students successfully, educationally and vocationally, in an existing facility for normally hearing students.

Evaluation of the Overall Project

The evaluation of the overall Project was reflected in the responses of the Advisors and Consultants from the various disciplines involved in the Project. Their comments are given in the Preface.

Opinions solicited from the participants themselves and reported by members of their families were also evaluated. The students returned a questionnaire concerning the Project. The answers are given in the last section of this report.

The rationale for the success of the demonstration project was based on a study of the effectiveness of the academic, technical, or vocational preparation of deaf and hard of hearing individuals in an existing educational facility for normally hearing persons and the resulting satisfactoriness of vocational and personal-social adjustment in the normally hearing community.

The efficacy of the supportive programs, per se was judged by the extent it had been possible to utilize, modify, or add to the existing programs and services in order to provide an opportunity for every participant to more fully reach his personal, social, and vocational potential.

Evaluation of the Students in the Affiliate Group

The affiliates were given audiological assessments, evaluations of communication skills and, in some cases, a battery of psychological tests.

All students were interviewed by the Director, the Psychiatric Social Worker, and the Project Chief Coordinator. No formal discussion of results is included in this report.

Evaluation of the Project as a Program for Orientation of Professional Trainees

The change in attitude and the comprehension which was evident in the Professional Trainees was taken as a means of evaluating the extent of orientation derived by them from the Project.

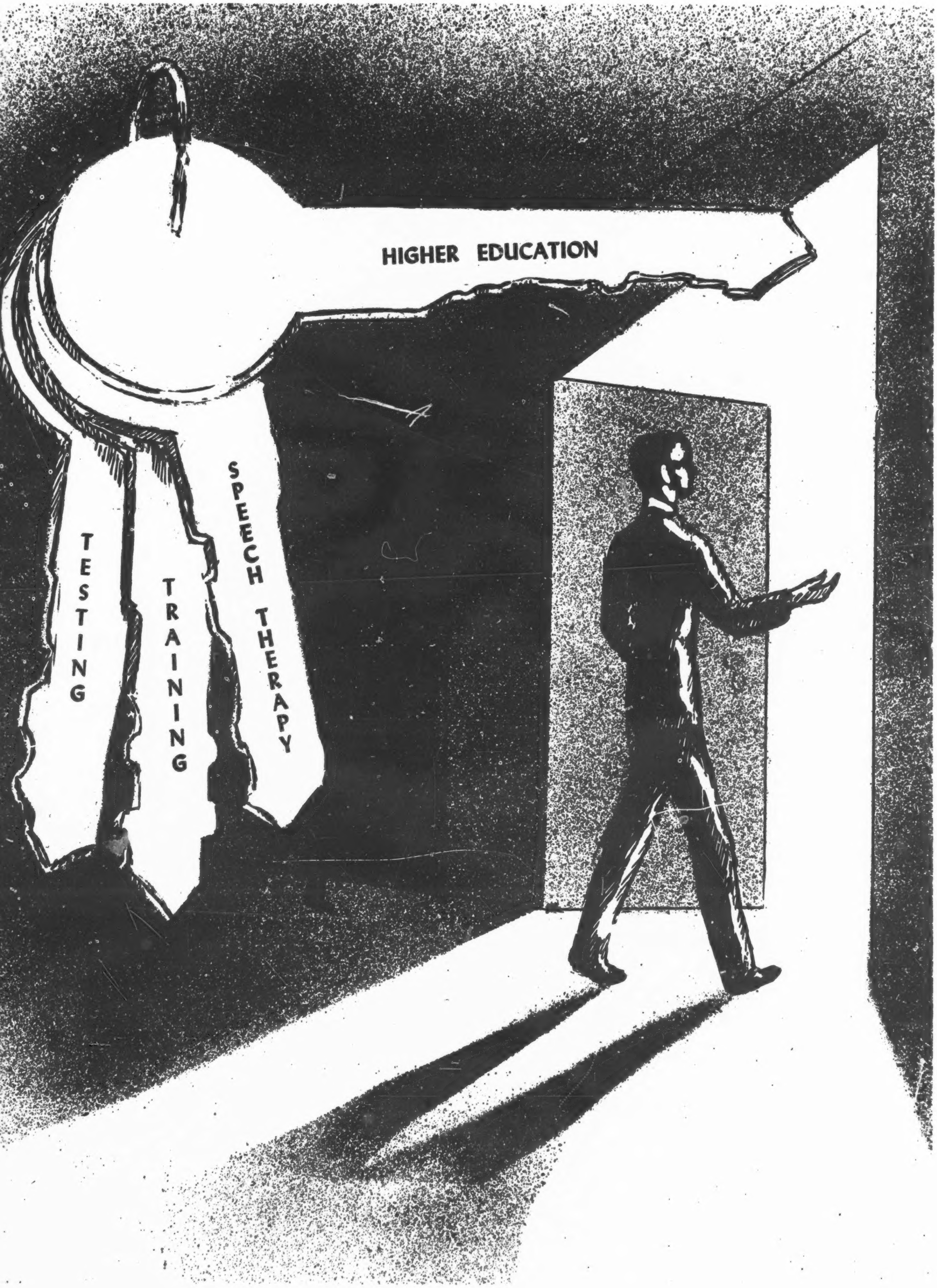
Cost of Placing Limited Hearing Students in Existing Facilities for the Normally Hearing

A comparison of costs between Gallaudet College and those needed to place a student in a facility such as Idaho State University is given in the last section of this report.

Postscript

A postscript to the evaluation procedures should mention the satisfactoriness of the program insofar as the regular normally hearing students were concerned. The comments on which techniques were most satisfactory given in the section on The Development of Comprehensive Supportive Programs points out that care must be shown in the incorporation of certain students into certain programs.

The overall attitude of the student body was evaluated by interviews of classmates and faculty members by the Coordinator and Project Director.


HIGHER EDUCATION
TESTING
TRAINING
SPEECH THERAPY

Regular Trade Course

Atypical Courses

Regular Trade Course

Manually Oriented Deaf*

Deaf people today face tremendous underemployment and much more unemployment than is generally recognized. Evidence of this comes not only from statements of authorities in the field such as Boyce Williams (1964) and Marshall Hester (1965), but from the findings of other recent research studies and surveys.

For example, an extensive study (Lunde & Bigman, 1959) at the National level showed that 83.0 per cent of the deaf were in manual jobs and only 17.0 per cent in white collar jobs. This was in comparison with the total population employment figures of 53.2 per cent and 46.8 per cent, respectively. The investigators pointed out that there was probably even a greater disparity since the lower-paid deaf workers were probably underrepresented. The incidence of the deaf in the professions is disproportionately low (Connor & Rosenstein, 1963; Crammatte, 1962; Lunde & Bigman, 1959).

The occupational study of the young adult deaf in New England (Boatner, Stuckless, and Moores, 1964) indicated that they were employed considerably below their potential level of functioning. This investigation was followed by a similar study of the young deaf adults of the Southwest (Kronenberg & Blake, 1966) which reported 31.5 per cent was unemployed. This figure included deaf youth with additional problems which affected employment opportunities. A more realistic figure for young adults with deafness only was reported as 25%. This was compared with the national rate of 11.2 per cent in 1964 (Levine,1965) for all young persons, 18-24 years of age.

These are disturbing findings, and they reflect a situation that does not have to be. With better opportunities for academic and vocational education, deaf people would be able to realize their potential, thereby upgrading their level of occupation and reducing their unemployment rate. The scarcity of opportunity for advanced education and vocational training for the deaf is rarely fully understood.

Two facts that graphically bring illustration of the durth of post-secondary-age education programs for the deaf are: first, only 8 per cent of the students leaving schools for the deaf are able to go on to college under present conditions. This is about one tenth the incidence of normally hearing students who matriculate in college (Schein & Bushnaq, 1962). Secondly, as the New England Survey (Boatner, Stuckless & Moores, 1964) pointed out, very few deaf people can make it through existing vocational, technical, and junior college facilities for the normally hearing without auxillary services to aid, at least, in overcoming their communication handicap.

McKay Vernon (1966) succinctly stated the problem of advanced education for the deaf:

> What this means is that the education and formal job preparation of the person who is deaf in the bast majority of cases terminates when he leaves the public residential school or the day program. In other words, the deaf youth is left to face the competition of the world of work handicapped not only by his lack of hearing, but also by an educational lag and by little or no chance to go

*Group A: Deaf students with congenital or early childhood losses and severe speech and language deficiencies.

> on to further academic or vocational education. This is an intolerable situation.

For effective educational planning to take place, accurate estimates of the types of deaf students and kinds of training for which they are best suited are needed. (See Appendix A for estimates of this population.)

General Characteristics of Students in Group A

Introduction. Group A students represented the group of deaf persons which is often described as being nonoral. They had depressed achievement levels and varying degrees of emotional immaturity. These students were the least aware of the diversity of opportunities and expectations of the normally hearing community. They initially evidenced the greatest reluctance to accept help from anyone not a member of their group. Obviously, orientation of both the limited and normally hearing populations was needed if the members of this group were to succeed in a manner commensurate with their potential.

Edward Reay (1965) in an editorial in *The Optimist* said:

> An interest point revealed by the project concerned the low achieving deaf person...Some young people were accepted who were a rung or two or three down the ladder from those fairly good academic students who attempted but failed to pass the Gallaudet College entrance examinations...These [represented] the deaf people that have the most need for more, full-time training in a vocational school.
>
> Thanks to the help and progressive thinking of the Department of Health, Education, and Welfare financial grants have been provided to answer some of the preliminary questions. [Regarding the training of prelingually deaf students in existing facilities for normally hearing students.]

The following data describes the general characteristics of the prelingually deaf students of Group A:

Number of students. Group A was composed of eight students.

Sources of referrals. Six of the students were referred by the School for the Deaf; one was sent by the Department of Public Assistance; one was recommended by relatives.

Time in the project. Four students spent one year and four spent two years in the Project. The average time was 1.5 years.

Chronological age. The age range was from eighteen to thirty-six years of age at the time of admission to the Project. One was eighteen, four were nineteen, one was twenty, one was twenty-two and one was thirty-six.

Sex. Five students were male, and three were female.

General health aspects. All of the students in Group A were in good general health at the outset and at the conclusion of the program as reported by the school health services and medical consultants.

Vision. One had normal vision; six had satisfactorily corrected vision; two had severe handicaps. One of the latter evidenced a reduced peripheral vision of such degree that it interferred with his choice of vocation.

Motor coordination. All students had normal motor coordination.

Diseases. No record of past illnesses was obtainable for one student. One had a chronic cough, two had meningitis, five had had occasional, and one had chronic, otitis media, and six reported having had rubella.

Operations. Five tonsillectomies and six adenoidectomies had been performed.

Communication: Some of the Difficulties Faced by the Prelingually Deaf

Richard B. Brill (1963) stated:

> Deafness is a unique handicap unlike all others because while it is a physical handicap, the major effect of the handicap is not physical but it is in an entirely different realm. The inability to hear sound in itself is not the major handicap to communication.

Language. The problem of language faced by the post-secondary-age deaf student is one which he may have had since childhood. The Report, Education of the Deaf (1965) described this problem in the following manner:

> For a child who is born deaf, or becomes deaf in his early years before the acquisition of language, there are hurdles to be overcome that stagger the imagination...Language is the indispensable tool of learning acquired with little effort by the hearing child, but it is acquired only after great effort and determination by deaf children and their dedicated teachers.

Louis M. DiCarlo in his book, The Deaf, (1964) provided a detailed study of language acquisition as seen by a number of specialists in the field. He, himself said:

> The cohesive force of language unifies a people; it both reflects and determines the mores of that society. The basic relationships between social structures and individuals evolve from, and are bound by, language usage....Only upon the acquisition of language can an individual become a member of that society.

Powrie V. Doctor, (1950) in discussing the difficulties faced in teaching abstract concepts to the deaf says:

> Many of our deaf students have a tendency to regard everything in life as entirely black or white...For this reason, teaching our older students in college the difference between the absolute mean and the relative mean is difficult....And very probably if you and I had been unable to hear family group conversation, we too would take the world far more literally than we do. Being deaf in a world of sound, is indeed a literal experience.

Speech reading. Edgar Lowell (1965) indicated that language was one of the successful keys to lip reading and that aptitudes and abilities related to it were chainlike. He included eye sight, temperament and opportunity as other important factors.

Oral communication. Oral skills are also related to the language factor. Lowell (1965) stressed that the opportunity to use oral communication was essential if either the skill or the motivation to become oral were to be developed.

The ability to speech read and use oral communication are skills highly valued by potential employers. Unfortunately, these are attributes which are often deficient in many of the prelingually deaf.

Manual language. An aura of inferiority has been given to manual communication. The confusion of signing with finger spelling has masked the language aspects of the latter.

Education of the Deaf (1965) stated:

> There will continue to be failures in the oral method, and facilities for teaching in the language of signs should therefore be retained. Furthermore many deaf adults will prefer the use of the language of signs and the company of the deaf as an easier and more relaxing social experience. They have a perfect right to make that choice, and no aura of failure of approbrium should surround it....The option should be kept open for deaf children to make such a choice as responsible adults.

Communication Characteristics of the Students in Group A*

One of the determining factors for the educational and vocational placements of the students in Group A consisted of the level of their language function. Since participation in courses designed for normally hearing students demanded a competitive level of language comprehension and usage, the members of this group with their profound hearing losses--three of which were congenital, four prelingual, and one in early childhood--were unable to participate satisfactorily in the standard offerings in the academic and technical fields.

*Table 25 provides pre and post-program ratings in communication skills, rate of improvement, and need for additional help.

TABLE 25

GROUP A (N=8): COMMUNICATION SKILLS

Aspect	Pre-program Ratings			Post-program Ratings			Rate of Improvement			Satisfactory		
	Unsat. Poor.	N.Impr. Fair	Satis. Good	Unsat. Poor	N.Impr. Fair	Satis. Good	Unsat. Poor	N.Impr. Fair	Satis. Good	Admis-sion	Termi-nation	Added Help
Structural Adequacy	0	0	8	0	0	8	0	0	0	8	8	0
Respiration	3	1	4	0	4	4	0	4	0	4	4	4
Phonation												
Pitch	8	0	0	3	5	0	3	4	1	0	0	8
Intensity	8	0	0	1	6	1	1	6	1	0	1	7
Timbre	8	0	0	4	4	0	4	4	0	0	0	8
Resonation	8	0	0	1	7	0	1	7	0	0	0	8
Articulation	8	0	0	1	7	0	1	0	7	0	0	8
Connected Speech	7	1	0	4	4	0	5	3	0	0	0	8
Written Language	2	5	0	1	7	0	1	7	0	0	0	8
Auditory Discrimination (Aided)	8	0	0	8	0	0	8	0	0	0	0	8
Speech Reading	1	7	0	1	7	0	0	8	0	0	0	8
Reading	2	5	0	1	7	0	1	5	2	0	0	8
Manual Skills	1	0	7	0	1	7	0	1	0	7	7	1

Ratings: unsatisfactory = poor, needs improvement = fair, satisfactory = good

The above ratings were made in comparison with communication skills of normally hearing persons. Rate of improvement was not necessarily in direct relationship to ratings of pre and post-program change.

Reported etiology of hearing loss. The students reported the following causes of their hearing losses: birth injury--1, chronic otitis media--1, meningitis--2, rubella--1, fever--1, underdeveloped auditory nerve--1, and unknown--1. The true etiologies could not be accurately elicited. Only one, a case of meningitis at the age of three years, could be confirmed. Otitis media of some degree was reported in all cases and was said to have occurred at some time during youth. Otologic examination ruled out any existing middle ear pathology which might contribute to the hearing loss.

Degree of hearing loss. The members of this Group showed sensori-neural hearing losses of 85 dB or greater (500-2000 c/s--ASA 1951). All had some measurable hearing at 500 c/s, and five responded audiometrically in the speech range, 500-2000 c/s.

Onset of hearing loss. The onset of hearing loss in three subjects was at birth, four occurred between one month and three years, and one at three years of age.

Use of amplification. None of the group reported any effective use of individual hearing aids before entering the Project.

Discrimination scores. Aided discrimination scores were less than 20% in all cases.

Communication skills. The communication skills of all of the members in this Group, except two, were similar: all but one used manual language almost exclusively--six combined finger spelling and signing, one used signing, but very poorly. Upon entrance, with one exception, verbal responses were limited to a few single words of greeting and exclamation. Any further oral communication was non-existent or unintelligible. One had no oral nor written communication.

Pitch was described as too high in seven subjects; intensity was too low in six and too loud in one. Five had breathy, and two, strident voice quality. Resonation was reported notably hypernasal in four and moderately so in three students. (One did not speak.)

Ratings of satisfactory, or good, were given to eight for structural adequacy, and to seven for manual skills. Four were rated good in regard to the respiratory basis for speech. Fair, or needing improvement, was the rating given to one student for respiration and connected speech, to seven students for speech reading, and to five in reading and written language. Poor, or unsatisfactory, ratings were given to three in respiration, eight in pitch, intensity and timbre, in resonation, articulation, auditory discrimination, to seven in connected speech, one in speech reading, two in reading and written language.

Receptive oral communication was limited to contextual situations where gestures and facial expressions furnished clues. Speech reading skills were not well enough developed to function in non-situational conversations but were reasonably satisfactory for most educational purposes related to the learning of trades.

Standard speechreading tests and language tests based on vocabulary and length of sentence were not appropriate for evaluating the pre-program nor the potential levels of functional communication skills.

Comprehensive Supportive Program in Communication for Group A Students

Auditory avenue. Each student was given an audiological assessment to determine whether or not he would benefit from individual amplification. Hearing aids were applied and tested. Only one student evidenced any functional improvement of discrimination for speech. The audiological testing scores did not show any change in the pre and post-program evaluations. Five indicated improved awareness for environmental orientation. Two reported no benefit whatsoever and did not use amplification during the Project.

An hour-and-a-half a week of individual auditory training was made available to the members of the group who expressed some measure of satisfaction with their hearing aids. Audiological rechecks were given frequently during the time in the Program.

Speech reading. Speech reading skills were studied with and without the presence of amplification in order to determine the extent of benefit from auditory cues. Vocabulary and conversation pertinent to educational and social functioning were used for training materials. Concomitant drill in speech reading was given with a developmental-type program for the improvement of speech skills.

Oral expression. Although the consensus of opinion of many persons in the disciplines related to the habilitation and rehabilitation of the prelingually deaf was that the teaching of speech to adult deaf persons was a waste of time, the Staff felt that it was one of the most important services which could be provided by the Project. Three speech therapy sessions a week, therefore, were arranged for each of the students in Group A. One affiliate with similar characteristics to those of the full-time students in this Group was given daily sessions throughout the summer vacation period. The one student who had slightly better oral expression than the other was provided with less structured therapy. Emphasis was placed on the correction of sound distortions and substitutions.

All the basic aspects of speech received attention. Articulation skills were approached from the developmental point of view. Completely re-programmed materials were used with the intent of trying to eliminate the practice of errors and the establishment of cumulative well-structured and correctly articulated connected speech. This program for the improvement of speech skills eventually converged with the critical vocabulary which was being taught in the classroom situations and educational adjustment groups where the cognitive aspects of communication were being emphasized.

Preparation of non-manually oriented staff and peers. Group A consisted of students whose need for manual language interpretation was paramount for interviewing, testing and counseling. Trade programs provided sufficient visual cues that little or no difficulty was experienced by either the students or their instructors.

Project coordinators were required to become proficient in manual skills. They served as interpretors for the Staff at the Employment Security Agency, the Faculty at the School of Trade and Technical Education and the Staff in the Atypical Programs.

The Project Staff and Professional Trainees learned finger spelling and were able to communicate with the deaf students of Group A. At the beginning of the Project, it was necessary for the students to reply in writing, but as their oral skills improved, much of the finger spelling and writing was supplanted by speech and speech reading.

Soon after the initiation of the Project, a number of persons on campus and in the community were discovered who were familiar with manual skills.

Except in critical areas such as counseling and testing, manual language was not stressed, even for the students in Group A. One of the aims of the Project was to study how much the deaf with severe speech and language deficiencies could profit from attending an existing educational facility with normally hearing students and teachers.

Faculty, house parents, and administrative personnel were given an orientation to the functional aspects of profound, prelingual deafness and the problems it caused. The coordinators kept in close contact with all of the persons associated with the project students so that some immediate solution could be found for any difficulty.

Adaptation of Communication Media

Trade courses. Several approaches to the adapatation of communication media were available. In the trade courses, the "buddy system" was used occasionally. There was little need for any other adapatation.

Office skills. During the first year when students from Group A were placed in the regular courses of office training, there was great need for adaptation. This was provided through interpretation by the partially hearing students from Group B, teacher tutoring, special group techniques within the regular group, individual attention during class, copying of friends' notes, tutoring by friends and instructors and preferential seating. None of these adaptations were necessary for the students in the trade courses.

Results and Evaluation of Communication Supportive Programs for Group A

Pre and post-program speech inventories showed that the three subjects with the higest IQ's and motivational factors progressed from one-to-two-word exclamations to intelligible connected speech of four-to-eight words. This conversations skill was limited to the vocabulary load which had been taught in the speech sessions, classrooms, and structured social activities. Less accurate carry-over was evidenced during informal conversations which were not related to the project program. It was felt, however, that the ability to use appropriate, intelligible speech even within somewhat structured circumstances was a credit to the students and their clinicians.

The three students with lower IQ's and poorer motivation acquired limited three-to-four-word intelligible connected speech patterns. All of which remained on a concrete and fairly immature level of expression.

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The student whose scores indicated borderline intellectual functioning and who was initially a nonreader and writer, as well as being nonoral, was disinterested in learning oral skills. His ability to grasp the principles involved in his trade course, however, belied the scores he made upon the entrance battery of tests.

It was felt that the experimental approach to language and the incentive provided by the obligation to associate with non-manual teachers and peers were important factors in the improvement of the speech and language of this group of prelingually deaf.

Post-program scores and improvement ratings of Group A students in communication.* The post-program test battery results were translated into functional ratings.

Structural adequacy remained good for all students, and manual skills were good for all but one student, as they had been at the initiation of the Project. The eighth member of the Group was rated as having made fair improvement and having fair manual skills in the last evaluation.

Receptive skills. Although improvement was made in some aspects of receptive communication, it was not particulary noteworthy. Auditory discrimination remained below the 20% as it had been initially. In spite of this poor rating, three students were able to improve their functional use of their residual hearing through training and the application of amplification.

Speech reading skills were scored fair for seven students and poor for one upon entrance. All were rated as making fair improvement during the Project although the original scores changed in one case only--that was to fair.

Although reading improvement classes taught one non-reader to function at the second grade level and to become familiar with terms related to his special trade, he was rated as poor upon termination of the Project. Two students whose reading skills were rated poor at the beginning became fair. This made a total of seven fair readers at the completion of the Project. Rate of improvement was considered good for only two of the students.

Expressive skills. Upon admittance to the Project all eight students had been rated poor in pitch, intensity, timbre, resonation, and articulation. With one exception, all were considered poor in connected speech. At the end of the Project, three were poor and five fair in pitch; one was poor, six were fair, and one was good in intensity; four were poor and four were fair in timbre; one was poor and seven were fair in articulation; four were poor and four were fair in connected speech; and one was poor and seven fair in written language.

Rate of improvement was the following: three were poor, four were fair, and one was good in pitch; one was poor, six were fair, and one was good in intensity; four were poor and four were fair in timbre; one was poor and seven were fair in resonation; one was poor and seven were good in articulation; five were poor and three were fair in connected speech; and one was poor and seven were fair in written language.

*Table 25 provides pre and post-program ratings in communcation skills, as well as changes in levels of functioning.

Satisfactory ratings. At the initiation of the Project four students were rated as satisfactory in respiration and seven satisfactory in manual skills. Upon termination of the Project, one student was rated satisfactory in intensity. Otherwise, no student reached the level of satisfactory when compared with the communication skills of normally hearing persons and, as a result, additional help was recommended for four in respiration, seven in intensity, one in manual skills and eight in all other aspects of communication.

Education: Some of the Difficulties Faced by the Prelingually Deaf

Vernon (1966) analyzed some of the problems of educational and vocational placements for the deaf:

> Automation is changing vocational employment drastically, and ...it is to this area of work that the overwhelming majority of deaf youngsters must look for their adult careers, which makes it *important that an objective examination be made of the vocational aspects of existing educational programs for the deaf**

Vernon quotes other authorities:

> For students who have the interest and ability for college work or for advanced technical education the emphasis at the secondary level should obviously be on academic work and a limited industrial arts course...This group represents approximately three to nine per cent of deaf high school age students (Schein & Bushnaq, 1962).
>
> At the opposite end of the continuum are roughly 10 to 20 per cent of deaf high school age students in the 90 or below IQ range. Granted a few exceptions, the overwhelming majority of these students (as well as many with IQ's over 90) will not achieve more than fourth grade level on educational achievement tests and many will be well below this (Kent, 1962)....A third or fourth grade achievement is generally the best that can be accomplished under present methods (Kent, 1962)....We might consider what we might expect in terms of educational achievement in hearing children of 90 IQ and below if they were required to master a foreign language without benefit of sound and were then expected to get their formal education in this language--which is essentially what is being expected of deaf students.
>
> The remaining 70 to 80 per cent of deaf students are not below average in intelligence but neither are they bright or interested enough for a college or advanced technical education. Some of these students need a curriculum providing vocational courses leading directly to employable level skills in trades and crafts.

Although Vernon was describing a secondary-age student in his article, much of what he had to say was equally applicable to those deaf students who needed to be given post-secondary-age level training by the Project.

* Original article had no underlining.

In Education of the Deaf (1965), the goals for the education of the deaf were described:

> The goals for education of the deaf are those which are accepted for education generally--to prepare them to be responsible citizens, and to offer them stimulus and opportunity for cultural enrichment of their lives. In the case of the deaf, much special help and assistance is necessary if this goal is to be made possible of attainment.

A description of some of the programs throughout the United States in facilities for the normally hearing is given in Appendix C.

Characteristics of the Students in Group A in the Area of Education

Pre-project educational backgrounds. One student had attended a school for the normally hearing for seven years. A second student had been in pre-school class for the deaf for three years. All students had attended a school for the deaf: the time range was from three-to-fourteen years, with a mean attendance of 8.7 years. The mean number of years of attendance per student was 10 years for all types of schooling.

Seven of the Group A students had formally completed the high school course at the School for the Deaf. A scholastic average of "B" was reported for three students and an average of "C" was recorded for four. There was no information available on the eighth student who had attended only a few months.

While attending the School for the Deaf, all were residents of the School.

Intellectual functioning. The IQ range was 80 to 136, with a median of 107 and a mean of 107.

Educational achievement levels. The range of achievement levels was 0 to 5, with a median of 5 and a mean of 3.5.

Comprehensive Supportive Program in Education for Group A Students

Academic and technical programs. No student from Group A was able to enter either the academic nor technical training programs. One student was given a restricted secretarial training course which consisted mainly of filing, typing, and bookkeeping. Her presence in the class of normally hearing students complicated the work for the teacher. The problem was partially solved by using one of her partially hearing classmates as interpreter, placing her with other limited hearing students in a special grouping within the classroom, and providing instructor help after class. In spite of the difficulties engendered by her presence among the normally hearing students, the student herself progressed satisfactorily and was successfully placed as a file clerk and typist.

Trade programs. Four students entered the trade areas. Two went into upholstery and two in body and fender. All four did exceptionally well and the instructors experience no difficulty.

The anecdotal treatment of one student confirms the need for evaluation through observation and opportunity rather than by standardized tests for the normally hearing and by judgment based on past performance.

One of the older, profoundly deaf applicants had been described as:

> A mental defective, brain injured, unable to perceive accurately, not successful in anything skilled. Recommendation--he should be given an opportunity to try something routine; if he fails, he might be placed in a junk yard, although it is doubtful if he would know what kind of a wrench to use. If unsuccessful there, look for an area not requiring that much skill.

Because of the determination on the part of the Director of the Trade and Technical Education and the Project Staff that every student should have an opportunity to prove himself, this man was admitted to a class in body and fender repair. The teacher agreed to take him for observation. It was generally thought that he might function only in the most restricted sense but that there was no other effective way to measure his potential.

Since this student had entered the Project late in the semester, he spent the remaining portion of the spring in the educational adjustment program at the Speech and Hearing Center. He concentrated on learning the vocabulary he would need. Although he did learn to read and write simple materials and ultimately tested at a second grade achievement level, he firmly indicated that he was interested only in those concepts which could be directly related to his chosen trade. Emphasis was placed on basic arithmetic, time, and money relationships. He did not develop any useful speech because he was totally disinterested in oral communication skills.

In the fall, he was placed in the regular body and fender class with some trepidation on the part of the Project and Trade School Staff. After two weeks' time, the instructor reported that he was doing exceptionally well--so well, in fact, that he was assisting some of the normally hearing students.

Before the end of the second semester, this student was selected as the outstanding student of the month for the entire student body at the School for Trade and Technical Education. His accomplishment in the classroom and subsequent successful vocational placement confirmed the need for observation and opportunity as a part of evaluation procedures.

Atypical programs. Two girls were placed in an atypical class established at the Speech and Hearing Center for teaching office skills. One of the girls had some oral communication, and after one year in the atypical class, it was planned to try her in a restricted or modified course of secretarial training in a group of normally hearing students. It was felt that she was sufficiently verbal not to lessen the effectiveness of the teaching of the other students.

The second girl was the only student who was completely disinterested in joining the Project. Recommendations from persons who had attempted to work with her were exceedingly poor. The Project Staff again decided not to allow past performance or low evaluation scores to stand in the way of giving any prospective student an opportunity to prove individual potential through situational and experiental learning.

This latter student had developed her own system of arithmetic which she carried on cards in her pocket for reference. She refused to take any formal reading classes and rejected speech therapy when she first entered the Project. At the end of the first year in the atypical program, however, she had become an expert copy typist and was able to work in a practicum provided by the university library for student teachers.

When she observed some of the successes made by other students from the atypical programs when placed in local banks, she became interested in finding a similar position. A promise was made that if she learned to read well enough she would be given an opportunity to work. Special classes were provided her during the summer, and by fall she was given a job in the city library. She was able to dothe typing, cataloguing, and the checking out of books in spite of limited oral skills, a profound hearing loss, and a serious language deficit.

Exploratory skills. A third student entered the atypical program after failing in his first educational placement. His original goal had been to become an airplane mechanic, but a severe impairment of peripheral vision in addition to profound deafness, unintelligible speech, and deficient language skills, made this and a number of other training programs impractical.

He was placed in office machine repair, but in spite of all of the efforts of the instructor, his classmates, and teachers in the educational adjustment program, he was unable to cope with the vocabulary needed for the course. Failure in this educational placement added to past failure, and he became tense and discouraged.

Soon after being put in the Exploratory Skills Unit, it was discovered that he had excellent motor coordination and artistic judgment. In addition to the working of gems, the making of ceramics, and orientation to several other manual arts, he was apprenticed to the photographer of the local newspaper.

Not only did he learn to take the news photographs, but he developed the pictures as well. His business acumen soon displayed itself as, unknown to the Project Staff, he convinced the University Public Relations Director that he should be allowed to use the administrative darkroom. He began taking, developing, and selling photographs he made of fellow students--both normally and limited hearing associates.

Because of his determination and the interest shown by the local newspaperman, this student was able to continue in the field of photography at the conclusion of the Project. Since the pre-program opthalmological evaluation had revealed a progressive visual impairment, it was hoped that the training in the use of the lapidary machine and potter's wheel might provide him with a source of income if it became necessary for him to give up photography at a later date.

This student demonstrated the importance of having an Exploratory Skills Unit for students whose educational placement was not satisfactory and for whom evaluation procedures did not provide sufficient information for an immediate selection of an appropriate training area.

On-the-job training. The student described above actually demonstrated successful on-the-job, or apprenticeship, training.

Educational adjustment. All students needed the educational adjustment program. The students during the first year resented attending the after-school sessions, but by the second year of the Project, they began to understand the importance of this aspect of the supportive educational program.

It should be stressed that the greatest problem for these students was not their profound hearing losses nor their lack of oral skills--but their deficient language development.

Orientation: Some of the Difficulties Faced by the Prelingually Deaf

DiCarlo (1964) describes some aspects of adjustment to the normally hearing community which are faced by the prelingually deaf:

> A review of the history spectacularly demonstrates how the deaf have moved from an ignominious position as fringe members of society to one of self respect. Nevertheless, the deaf have a long way to go before they attain first-class citizenship in a hearing world. Many enjoy that status now, but not all can, or care to, move from the protection of a subculture. The security and mobility of being in a group of one's own kind may be desirable. The deaf, however, must make this choice after they have been equippped to participate actively in both worlds. The concept that the deaf should be happy in their own right and not unhappy as inadequate imitations of the hearing has much to recommend it. Still, the acceptance of this philosophy restricts aspirations and goals and is, in effect, a compromise. Nevertheless, if this condition were the only available alternative, none would dissent. Many educators, however, see no reason why the deaf could not be happy in both environments if they have been prepared and if they possess the necessary qualifications and competence for successful adjustment.

Before a person may be rehabiliated vocationally, he must be helped to socially adapt himself. If he is a misfit, he will have difficulty in getting along with others--hearing or non-hearing. His concept of his world is largely based upon his concept of himself and the resulting interrelationships, personal, social, and educational-vocational.

In an analysis of self-concept, John O'Neill (1964) states:

> Self-concept may be defined as the individual's evaluation of himself as the result of past experience which includes interaction with body parts, things, persons, and symbols.... Often the deaf individual's problems of adjustment are not viewed in terms of normal developmental levels but only in terms of the handicap itself. Many times we are guilty of reading into the private world of the deaf our own logical deductions. In turn the perceptions of the deaf are some-

> times clouded by the filters imposed by their own needs and past learning experiences. The resulting distortions can lead to bizarre, unreal and unadaptive behavior.

In prelingually deaf adults, the vocational training program among normally hearing peers may be one of the few post-childhood opportunities to overcome what Kohn (1965) feels are the "strong emotional ties and loyalties to each other, which prepare them to enter an exclusive and excluded community of the deaf as adults."

If the prelingually deaf adult is to be given the opportunity to establish a realistic self-image in the normally hearing and deaf communities, the "helping professions" need to understand his needs and problems and interpret them to the hearing community. Vernon (1964) pointed out some of the problems present in the testing of deaf and hard of hearing children:

> 1. Personality evaluation is a far more complex task than is IQ testing especially with deaf children. Because of this, test findings should be interpreted in light of case history data and personal experience with the child.
>
> 2. Because of communication problems inherent in severe hearing loss, personality tests are more difficult to use with deaf subjects than with the general population...They also presuppose a rapport and confidence on the part of the subject that is difficult to achieve when the person examined cannot understand what is being said or written.
>
> 3. There is some question as to whether the norms for the personality structure of hearing people are appropriate for deaf and hard-of-hearing subjects...Conceivably, deafness alters the perceived environment sufficiently to bring about an essentially different organization of personality in which normality would then differ from what it is in the case of a person with normal hearing.
>
> 4. The use of interpreters who express the psychologist's directions in fingerspelling and sign language is a questionable procedure. What is required is an interpreter, fluent not only in manual communication, but also in psychology and testing.

Introduction to the orientation of the members of Group A. Since Group A was comprised of prelingually deaf students with severe speech and language deficits, their adjustment to and their degree of investment in a program designed for hearing students embodied the crucial factors of the original project goals. They made up the group most closely observed by persons interested in the difficulties inherent in the education of the deaf and the type of facilities needed by the group of deaf as defined by project students in Group A.

Not only did the effects of deafness soon dictate types of educational placements, but the need for personal-social orientation activities became apparent. Continual, individualized attention was necessary on the part of the regular faculty and the Project Staff in order for the prelingually deaf to be given an opportunity to achieve their potential through training in an existing educational facility for normally hearing students.

This Group had the greatest obstacles to overcome:

1. they had always been a part of the deaf world,

2. they had found comfort and cohesiveness in remaining with their own kind,

3. the normally hearing community was most unfamiliar to them and seemed further away,

4. they felt shy, withdrawn--less prepared to face the normally hearing community,

5. they felt pressure from the hearing community to communicate orally; they found the old way did not suffice; they felt unprepared to deal with the normally hearing environment.

The students in Group A seemed to represent people with reality problems, They were unaware of the diversity of choices, in educational and vocational areas. Also they were unaware of the expectations of the normally hearing society--socially, educationally, and vocationally.

Their first reactions to the demands made upon them by the support programs were rejection and withdrawal. Gradually a better comprehension of what the Project was about and what the opportunities meant to them was built up by individual and group meetings with the Staff from the School for the Deaf. Suspiciousness, resentfulness, and refusal gave way to collaboration, integration, and understanding. By the end of the second year of the Project, the integration of the prelingually deaf students had become an accepted procedure by both the deaf and their normally hearing peers.

Characteristics of the Students in Group A in the Area of Orientation

Marital status. All members were single.

Recipient of previous financial help. Pre-project help had been accorded one student by the Department of Vocational Rehabilitation and one by the Department of Public Welfare.

Student attitude toward entering program. Seven of the students entered the program upon recommendation by the Superintendent of the School for the Deaf, although most of them were not enthusiastic about the prospect. One entered because of family insistence.

Family attitude toward the program. All but one of the families encouraged the student to enter the program.

Reported treatment during childhood. All members of Group A reported that they had been treated the same as their siblings.

Levels of emotional maturity and corresponding supportive programs. Just as the word developmental was applied to the area of communication throughout the Project, it was decided that a large part of the emotional behavior of the students could be described in developmental terms since they appeared to be at the pre-adolescent or early adolescent levels.

Prelingually deaf persons have often faced the tendency of professional, as well as non-professional persons to label them as "lazy, uncooperative, and dependent" without considering the emotional era within which they are functioning. As a result, the deaf have been further rejected or pressured into situations for which they have been unprepared.

The personal-social responses from the members of Group A soon indicated that they were not ready for the experiences inherent in the programs of their normally hearing peers. In recognition of this, social activities thought to be appropriate to their developmental era were instituted. Counseling sessions with the psychiatric social worker were set up for the project students, the staff, and the professional trainees.

Information concerning each student's activities and studies was given to the Counselor so that the conferences could be meaningful and related to the overall activities of each pupil. At first, some difficulties in communication arose since the students were not familiar with the vocabulary and concepts involving an expression of feelings and experiences.

Group A students seemed to find it difficult to relate in an abstract way. They did not understand what "worry" was or how they "felt". They related to the Counselor in a manner somewhat childlike. They were candid, honest and non-evasive. Many of their aspirations for vocations were unrealistic. Some desired to become movie stars, engineers, and policemen. On the other hand, whey they chose their training courses, they were unaware of any of the opportunities beyond what prelingually deaf students had taken in the past.

Withdrawal, shyness, and feelings of inferiority were noted with all the Group A students when they were relating to normally hearing students. As soon as they understood the purpose of the Project thoroughly, they were willing, however, to cooperate with the experience of bringing the deaf and normally hearing together.

The students who did not come from broken homes, with two exceptions, seemed better adjusted and motivated toward advanced training programs. They seemed to be able to become emancipated from their parents more easily.

The students in Group A needed acceptance in a consistent supportive atmosphere where they were encouraged to bridge the gap to the hearing community. They needed to experience some successes so that they might dare to do something they previously had felt impossible. To compensate for their handicap, they had to become more aggressive than passive.

It was not long before two of the students became more independent than dependent. Some of them became sufficiently emancipated from their parents so that they were able to set up their own housekeeping.

Developmental orientation. The level of emotional maturity of the deaf students was analyzed according to the scales for normally hearing students. Progressively sophisticated opportunities for experience were provided. Careful observation was made of the reaction and change in each of the students. When he appeared to accept each "experience," a higher level of "functioning" was then planned.

As a part of the developmental orientation, it was recognized that it was necessary to take the students from the "known-to-the-unknown." A Club of the deaf and partially hearing students was formed. This need to associate with the "known" became even more evident when only those who identified with the prelingually deaf were made to feel welcome by the deaf members. Several of the oral deaf students joined, but during the first year of the Club, only one of the oral students continued to attend because of the ostracization displayed by the manually oriented students.

The majority of the members of Group A had known each other a long time and had gone to the School for the Deaf together. They felt very comfortable among themselves and tended to form cliques within the Club with participation limited to their own kind. They showed no desire or need to reach out to hearing students for support. They looked to one of their own manually-oriented peers for leadership.

The prelingually deaf students responded to the Club as if socially they felt something was missing from their lives. They liked having something that was all their own.

At first the Club activities were somewhat emotionally and socially immature. The students did not mind playing childish games and having birthday parties with ice cream and cake. After several months of guided experiences which gradually lead them into more complex social experiences, several members of the Group demanded more adult activity.

In order to provide successful social experiences, a psychological study was made of the professional trainees in Speech Pathology and Audiology. Certain trainees were chosen to participate in the Club activities and to show particular interest in selected deaf students. This plan seemed to provide rewarding experiences, and gradually, the deaf began to date normally hearing peers. The latter activities were managed entirely by the deaf students themselves and suggestions were given only when asked for.

These heterogeneous contacts and behavior patterns appeared to be a logical outcome to a developmental personal-social orientation program designed to meet the needs of each student at whatever era of emotional maturity he was when he entered the program.

Age seemed to be an important factor in terms of adaptability. The prelingually deaf person who was older could communicate with a younger prelingually deaf person with ease, but this did not seem to be of importance to either. The older student did not join any of the activities of any of the oral or manual limited hearing persons.

Living quarters during the Project. One of the aspects of the Project which seemed conducive to better understanding of the normally hearing community and which appeared to develop a sense of easiness with others than the manually oriented deaf was the housing arrangements made in the dormitories and private homes with normally hearing persons. Five students lived in the university dormitories, two in approved homes, and one in her own home.

Some of the difficulties faced by the coordinators during the first year were described in the following manner (Neyman, 1963):

1. unkept quarters,
2. lack of knowledge of personal hygiene,
3. initial tendency to ignore normally hearing peers in dormitories, secondarily, a tendency to try to imitate and become constant companions to the students they chose as their "ideals,"
4. the girls in private homes feeling that they were immediately "members of the family" and should be cared for and waited upon to the same degree as the other young people in the family,
5. rivalry which developed between the children of the family and the deaf students for attention from the parents of the former,
6. unawareness on the part of the deaf students regarding the feelings of others, even with other deaf students,
7. attachment to one of the parents in the boarding situation which became extremely strong and demanding, and
8. refusal to keep university rules concerning hours.

Whatever the difficulties were, placing students in homes of normally hearing families proved to be an effective "half-way measure" to learning to become independent and aware of what was expected of them if they were to function satisfactorily in a normally hearing milieu.

Vocation: Training and Experience for Members of Group A

The planning of a program, the purpose of which was to be the successful placement of deaf persons with severe speech and language deficits in vocational competition with normally hearing persons, required an analysis of the attitudes of the deaf and all of those associated with them. It was important to know, not only that the employer-employee relationship was satisfying, but also to know if the deaf person was working up to his potential.

Characteristics of Group A Students in the Area of Vocation

Previous vocational experience. None of Group A was formally employed at the time of admission. One had been full-time, and five had been part-time, farm hands. One had done maid work in a motel. One had been sitting at home. All but the full-time worker had been employed only during the summertime.

Previous vocational training. One student had received training in dress making and four in printing at the School for the Deaf.

Unawareness of vocational training opportunities. The deaf and partially hearing students from schools for the deaf were unaware of the types of vocations open to them. They only knew about the jobs which had previously been open to their deaf classmates. They did not comprehend the significiance of additional training for better vocational placement.

The levels of vocational aspiration of the members of Groups A and B were on a par with preadolescent normally hearing population. Distorted life goals included becoming pilots, movie stars, and models. Counseling with the Psychiatric Social Worker included helping Group A and B students find realistic vocational goals and a sense of security and acceptance in a normally hearing work environment.

It was not sufficient for the deaf and partially hearing students to learn new trades and skills; they had also to learn the responsibilities encumbent upon them as employees--the concepts of the mutual responsibilities of employer and employee, and the contractual relationships between the two. For example, it was difficult for these students to understand that circumstances might alter employers' judgments. It was incomprehensible to one girl that missing a day's work because of illness or accident was different from missing a day deliberately or capriciously. These kinds of concepts had to be learned through vocational experience. It was necessary, therefore, to provide transitional job placements.

Transitional vocational experience. Soon after the initiation of the Project, the first step in temporary vocational placement was taken. Students from Group A were placed in part-time occupations based on skills learned in the schools for the deaf. The complaints which were received from their employers were not a result of their preparation, but of their attitudes. The outcomes were, in most cases, disastrous, but they provided a basis for instituting comprehensive supportive programs which would prepare the students for better work adjustment in the future.

The first transitional vocational placements served to alert the Project Staff to the vocational immaturity of the members of Group A. The students had done such poor work that they had been dismissed within two or three appearances for work--in the cases where they had bothered to appear at all. The extent of their effort was to work just long enough to earn enough money to pay for a night at the movies and some shaving lotion and toothpaste. They also insisted upon being paid at the end of each work session. They had no concept of waiting for recompense nor of budgeting principles.

There were no standards by which to predict their behavior other than those which had been dourly stated by some of the normally hearing faculty, several persons acquainted with a few deaf persons, and some of the deaf themselves. The essence of these comments was that an institution for normally hearing students was not a satisfactory environment for the training of the deaf. The initial behavior of Group A students seemed to confirm this philosophy.

Progressively complex job situations were created. Members of Groups A and B were given part-time work at the Speech and Hearing Center under the close supervision of the Project Coordinator. In this atmosphere, it was possible to adjust the schedules, demands, and training to the needs of each student. The principles of known-to-the-unknown and simple-to-complex were applied to the vocational training.

As the students became more experienced, they developed better concepts of punctuality, attendance, and work excellence. As soon as one of them demonstrated better work adjustment, the University Employment Office was contacted a second time. Explanations were made for the original failures of the students, and the deaf and partially hearing students were given another opportunity.

This time, all of the students performed well. Several were given regular employment and competed successfully with normally hearing peers in order to earn their board and room expenses.

Subsequently, local businessmen were contacted. Orientation meetings were held with company representatives, and the students began working at part-time, after-school jobs in the community. Small incentive payments were provided and the students were counselled regarding the budgeting of their income.

Vocational placement. Six out of the eight students in Group A were placed in full-time occupations, one was a part-time photographer for a newspaper. The eighth member had been overprotected by his family and they persuaded him not to accept any job offer until he could be set up in his own upholstery shop. One of the young men was sufficiently competent to be able to leave the upholstery program two months' before the course completion date and accept employment in a local furniture factory.

Two girls accepted clerical positions: one a file clerk in an office in her home town, one as a clerk-typist in the local library. Two were hired in body-and-fender shops--one as a partner to his father, the other in a neighboring community garage. One girl married before completing her training.

Occupational satisfactoriness. All students showed an excellent attitude toward going to work and toward their employers, in contrast to that evidenced at the beginning of the Project.

One of the two female students who married but who continued to work as a clerk did exceptionally well on the job during the first year. Her employer rated her as superior to his normally hearing employees in the same office. Her satisfactoriness became less as her marital problems increased and an employee of the company who was familiar with manual language left. All members of Group A were considered highly satisfactory by their employers.

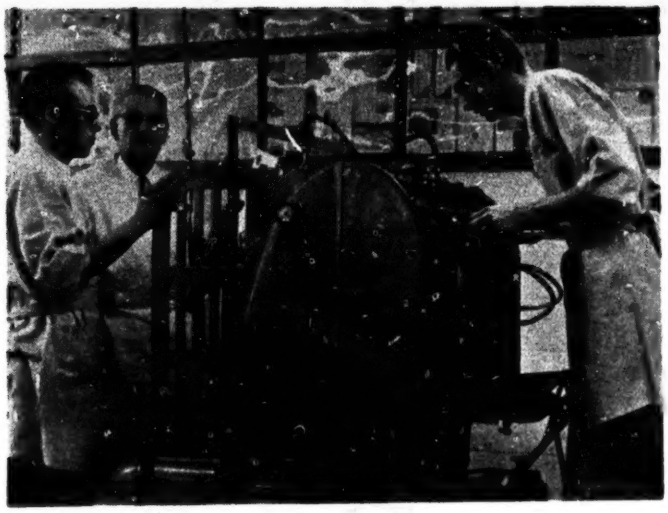
Occupational satisfaction. Six out of the six placements rated their occupations as satisfactory. Two reported that they felt their jobs were equal fo their deaf friends; four felt that their jobs were better than their deaf friends.

Five rated their jobs as equally good in comparison with their normally hearing friends. One felt that his job as a part-time employee was not as good. Considering his multiple handicaps and the intellectual level of several of the other students, a comparison with normally hearing students who had similar handicaps, but no learning loss, was difficult to make.

In the same ratio as above, Group A students felt that their post-project salary was competitive with normally hearing peers.

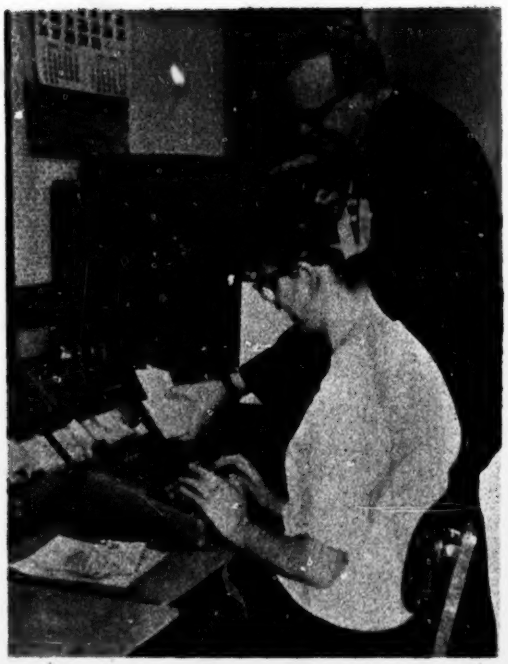
Follow-up procedures. The need for follow-up measures became apparent in the case of the girl who worked as a filing clerk and began having marital and vocational problems. Since funds were not available for frequent visits by the Staff to those who were placed out-of-town, insufficient supportive measures were available to her.

Liaison for the Deaf and Normally Hearing Communities



Traditional Program for the Deaf

On-the-job Training



Atypical Training in a Business Setting

Transitional Vocational Experiences

Partially Hearing*

The literature has been largely silent concerning individuals with considerable residual hearing who have been reared and/or educated with the profoundly, prelingually deaf. The only plausible surmise has been that these people have joined in and identified with the legions of the deaf because no programs have been available to assist them in developing self concepts commensurate with their abilities to succeed in the normally hearing community.

The Education of the Deaf Report (1965) stated that:

> It is difficult, therefore, to describe or define the "typical" deaf person. Individuals who are termed deaf may vary widely in degree of hearing loss, in age at onset of hearing loss, in methods of communication used, in their attitudes toward their deafness, and in many other factors. For example, an individual might be classified audiometrically as being hard of hearing on the basis of his acceptance of, and gravitation to, the deaf community rather than the hearing community. Similar interactions are possible among the other variables.

A great many members of the project partially hearing population were faced with a feeling of ambivalence toward one or both the normally hearing and the deaf groups. This attitude appeared to depend largely upon their early associations. According to O'Neill (1965), the attempt to maintain and build up a phenomenal self and to get others to accept a particular image could lead to a deviant pattern of behavior when an impairment of an effective symbol system to communicate feelings, needs, and desires interferred.

The partially hearing students in Group B were the inheritors of a condition caused by the sparsity of population in the Idaho area; no services or facilities for the traditionally hard of hearing children had been established during the educational lifetime of these students. Their parents had been faced with the dilemma either of placing their limited hearing children into the public school classroom with no help from amplification, supportive training or specialized personnel, or of registering them in a school for the deaf where the programs were designed for children with profound losses.

> Byron B. Burnes (1958) described the rapidly expanding deaf group which comes from the public school system as one which is "encouraged by educational theorists who believe that the way to make a normal child of a deaf child is to send them to school with hearing children." Some of the partially hearing group demonstrated the reverse; the making of "deaf" children out of hard of hearing. The educational background of those who had attended a school for the deaf, however, was far superior to that of those who had tried to attend regular classes in the public school.

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*Partially hearing: Students with congenital or early childhood losses and mild-to-moderate speech deficiencies and moderate language deficiencies.

Estimates of the numbers of partially hearing persons* needing training were made by Schein (1965):

> Turning to the estimate of the less severely impaired, about 48,000 can be expected to be in regular schools. If 40% of this group leaves school this year, then about 19 thousand additional persons with hearing impairment will enter the labor force or go on to higher education. Since the prevalence of hearing impairment, as with other chronic disorders, tends to be higher for lower income groups, it is possible that about 10% of these persons may also be economically disadvantaged. Potentially, this would mean about 1,900 hearing impaired candidates for the Job Corps.
>
> Perhaps another 2,000 youths with a less severe hearing impairment will qualify annually as economically disadvantaged.

General Characteristics of Students in Group B

Introduction. Upon entrance to the Project, the partially hearing students of Group B were found to exhibit, although to a somewhat lesser degree, the same type of speech and language deficits, inadequate educational achievement, emotional immaturity, and lack of motivation apparent in the congenitally deaf of Group A.

Number of students. Group B was composed of ten students.

Sources of referrals. Nine of the students were referred by the School for the Deaf; one was sent by the Department of Public Assistance.

Time on the Project. One student spent less than one year, three spent one year, and six spent two years. The average time was 1.6 years.

Chronological age. The age range was from nineteen to twenty-two years at the time of admission to the Project. Two were nineteen, three were twenty, two were twenty-one, and three were twenty-two.

Sex. Seven students were male and three were female.

General health aspects. All of the students in Group B were in good general health at the outset and at the conclusion of the program as reported by the school health services and medical consultants.

Vision. Six students had moderate impairments and four had slight impairments of vision. All were satisfactorily corrected.

Motor coordination. All students had normal motor coordination.

Other health aspects. One student had a tubercular elbow which she used as a means of further complicating educational and vocational placement during the early part of the Project.

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*Assumption was made by the Project Staff that Schien's study came closer to describing a partially hearing population than any other estimate.

Diseases. Five students reported medical histories of chicken pox, one of chronic sinus, one of hepatitis, one of meningitis, six of mumps, six of occasional otitis media, one of chronic otitis media, one of pneumonia, one of rheumatic fever, nine of rubella, one of scarlet fever, and one of whooping cough.

Operations. Five tonsilectomies and eight adenoidectomies had been performed.

Communication: Some of the Difficulties Faced by the Partially Hearing

The members of Group B actually had developed reasonably good speech, but they did not want to use it. All of them listed, before entering the Project, their only associations outside of their families as being with the oral and manual "deaf." Their identification with the deaf population was illustrated by the fact that at the outset of the program they refused to wear hearing aids, even though they were encouraged to do so by being given better fittings, auditory training, and the actual aids. Aids were provided for the students by their Vocational Rehabilitation Counselors upon recommendation by the Project Audiologist. The partially hearing students appeared to feel uncomfortable and insecure unless they could be identified as a part of the prelingually deaf group.

The concern and search for continued identification with the members of Group A was heightened by the tendency of the prelingually deaf to turn away from any member of the partially hearing group who wore an aid or communicated with the normally hearing associates. Thus the application of amplification interferred with their former self-concept or body-image as "deaf" persons.

Ruth M. Clark (1960) described some of the aspects of body-image:

> The body image arises from varied physical and psychological experiences as well as from relationships with other people. Body image is not static but is continually being modified....The body image changes with age according to one's experiences, but it always retains some emotional coloring from the body images of early childhood and infancy....
>
> It behooves the speech and hearing therapist, or any rehabilitation worker, to recognize that not only disabled limbs, organs, and bodies are being treated, but that the individual's image of his paralyzed body, cleft palate, non-hearing ears, stuttering blocks and grimaces, or atrophied muscles are also being treated. With this philosophy one realizes that every therapy session should be more than the teaching of sounds to improve articulation, or the interpretation of movements for speech reading.

The above quotation suggests that a comprehensive pattern for the new role which the "helping professions" must be assumed if a realistic and effective habilitation or rehabilitation of the person in therapy or training is to take place.

Characteristics of Group B in the Area of Communication*

Reported etiology of hearing loss. Nine of the students reported the following causes for their hearing losses: birth injury--1, chronic otitis media--1, meningitis--2, pneumonia--1, rubella--1, high fever--1, and injury to the ear--2. The only confirmed etiologies were two cases of meningitis and one of measles. Six reported otitis media of some degree at various times, but no evidence of permanent ear pathology was reported in the admission examination. Eight of the Group suffered from occasional attacks of otitis media during the course of the Project, but these were transient and amenable to treatment.

Degree of hearing loss. The hearing losses in this Group were essentially sensorineural, with an average in the speech frequencies ranging from 33 dB to 67 dB (500-2000 c/s--ASA 1951). Three had averages better than 50 dB, four better than 60 dB, and three better than 70 dB.

Onset of loss. The onset of the loss was at birth in two cases and between eight months and three years of age in seven. The onset was unknown in one instance.

Use of amplification. Three students reported that they had not used amplification before entering the Project although they were excellent potential users of individual amplification. Seven had used it part time. All benefited from amplification during the Project.

Aided discrimination scores. Aided discrimination scores for Group B were the following: one student for each score of 40%, 56%, 62%, 68%, 72%, 75%, 80%, and 86%. Two students scored 84%.

Oral communication skills. At the time of admission, the potential oral communication skills were masked by their identification with and need to function as deaf students. With amplification, eight of the Group B students were able to function aurally-orally quite satisfactorily. They all used manual language skills since they gravitated to the students in Group A. Speech movements were mouthed at the same time they employed the manual mode.

The speech of six students was quite intelligible and was rated satisfactory in connected speech and articulation. Four were given fair in connected speech and three, fair in articulation. One was rated poor in articulation. Good was given to four in respiration, three in pitch and timbre, and seven in intensity. Two were considered good in resonation.

Fair ratings were given to six in respiration, to five in pitch, timbre, and resonation. Poor representation was shown by three students in intentisy and resonation and by two in pitch and timbre.

Structural adequacy and manual skills. Structural adequacy and manual skills were rated good in all the students in Group B.

*Table 26 provides pre and post-program ratings in communication skills, rate of improvement, and need for additional help.

GROUP B (N=10): COMMUNICATION SKILLS

Aspect	Pre-program Ratings			Post-program Ratings			Rate of Improvement			Satisfactory		
	Unsat. Poor	N.Impr. Fair	Satis. Good	Unsat. Poor	N.Impr. Fair	Satis. Good	Unsat. Poor	N.Impr. Fair	Satis. Good	Admis-sion	Termi-nation	Added Help
Structural Adequacy	0	0	10	0	0	10	0	0	0	10	10	0
Respiration	0	6	4	0	4	6	0	4	2	4	6	4
Phonation												
Pitch	2	5	3	0	3	7	0	5	2	3	7	3
Intensity	3	0	7	0	1	9	0	0	3	7	9	1
Timbre	2	5	3	0	2	8	0	2	5	3	8	3
Resonation	3	5	2	0	5	5	0	3	5	2	5	8
Articulation	1	3	6	0	2	8	0	2	2	6	8	4
Connected Speech	0	4	6	0	0	10	0	0	4	6	10	1
Written Language	1	7	2	1	7	2	0	5	5	2	2	10
Auditory Discrimination (Aided)	10	0	0	0	6	4	0	6	4	0	4	10
Speech Reading	0	7	3	0	3	7	3	4	0	3	7	10
Reading	1	4	5	1	4	5	0	3	2	5	5	10
Manual Skills	0	0	10	0	0	10	0	0	0	10	10	0

Ratings: unsatisfactory = poor, needs improvement = fair, satisfactory = good

The above ratings were made in comparison with communication skills of normally hearing persons. Rate of improvement was not necessarily in direct relationship to ratings of pre and post-program change. Satisfactory at termination does not mean they could not profit from additional help.

Speech reading. Standard speech reading tests did not seem to be effective measuring devices for Group B. The students had functioned to such an extent in the deaf community that expressions common to the hearing community were not sufficiently familiar to the members of Group B to be used in evaluation. They seemed unable to handle easily anything non-contextual. Speech reading and auditory discrimination were not used as support to better aural-oral functioning. All ten were rated poor in discrimination, seven fair and three good in speech reading.

Reading and written language. One student rated poor in reading and written language; four were fair in reading and seven fair in written language; five were good in reading and two were good in written language.

Comprehensive Supportive Program in Communication for Group B Students

Auditory avenue. Each student was given an individual auditory assessment to determine the degree to which each would benefit from amplification. Some of the students owned hearing aids, although not one was wearing amplification consistently. Audiological re-checks were given whenever it seemed necessary. New aids were recommended and former aids were repaired.

An hour-and-a-half of auditory training was given each week. Most of the students had fairly good auditory discrimination and the result of this training was largely the firm implantation of hearing aid use and the establishment of an awareness of their ability to function in an oral world if they so desired.

Exercises in speech reading, with and without auditory clues, were given several times a week using the audiometric testing suites and controlled auditory input. Emphasis was on functional listening with an individual aid.

Oral expression. Initially all members of this group were given two sessions a week of speech improvement or correction. By the second semester, eight were participating in a public speaking group organized for them, and one was attending regular freshman speech classes with the campus normally hearing students.

Language improvement was coordinated with regular classwork and educational adjustment programs.

Group B demonstrated the most dramatic gains of any of the groups. This was largely because they had been functioning at a much lower level than their immediately available abilities. Once they attained sufficient insight into their potential integration into the hearing community, they made rapid strides, especially in personal adjustment.

It was gratifying to note that, ultimately, the integration by the partially hearing with the normally hearing associates did not damage their relationship with their deaf friends. The increased understanding of the opportunities afforded by this relationship seemed to intensify their desire to assist the less oral deaf in achieving a satisfactory relationship. As a result, the prelingually deaf also elected to participate in the activities of the normally hearing.

Communication orientation of normally hearing associates. Whenever necessary, the members of Group B served as interpretors for Group A.

Faculty and friends became aware of their need for preferential seating and supplementary use of speech reading. As long as proper supportive measures in all aspects of the program were inaugurated, the communication problems of the partially hearing assumed a minor role in the successful educational and vocational placement of Group B students.

Adaptation of communication media for presenting educational programs. A number of approaches were used for the adaptation of the communication media.

No problem was presented in the Printing Course since the instructor was both manual and oral. In the secretarial course, special grouping and help from both the instructor and a manually oriented student were needed.

Taped-typed notes were used for the student attending academic courses. Tutoring by the instructor or by another student, was also employed. Copying of a friend's notes was helpful. Orientation of faculty was important. Weekly check-ups were used for all of the students in Group B.

Results and Evaluation of Communication Supportive Program for Group B

Pre and post-program speech inventories showed that all students were still rated good in structural adequacy and manual skills. Whereas several students had been rated poor in pitch, intensity, timbre, and resonation, all showed improvement, and good ratings were given to seven in pitch, eight in timbre, nine in intensity, and five in resonation. The remaining students were rated fair.

Expressive skills. Articulation was evaluated as good in eight and fair in two students at the close of the program as opposed to one poor, three fair, and six good at the beginning. Post-program connected speech was rated good for all ten, while only six were considered good and four fair at admission.

Although the students were able to function in the restricted (modified) and atypical programs and showed some improvement, they were never able to compete successfully with normally hearing students in courses demanding a high level of language development. Ratings in written language did not change pre and post-program.

Receptive skills. All ten were rated poor in auditory discrimination upon entrance to the Project. This was due to rejection of amplification and disuse of the auditory avenue for communication. Post-program ratings were good for four students and fair for six. These evaluations were based on functional use more than on formal auditory testing since the supportive communication program was directed toward orienting the partially hearing students in Group B to the normally hearing community.

Speech reading was also necessary for adjustment to the oral-aural environment. In comparison to pre-program scores of three good and seven fair, post-program evaluations indicated that seven were good and three fair.

Although some improvement was shown, the ratings for reading skills were not changed.

Rate of improvement. With the exception of three students in speech reading, all received ratings of good or fair improvement for all aspects. Rate of improvement was related to the functional use of communication skills. Some students were faced with more severe losses than others.

Satisfactory at termination. The number of students who were considered satisfactory at the post-program evaluation were: two in written language, four in auditory discrimination, five in reading and resonation, six in respiration, seven in pitch and speech reading, eight in articulation and timbre, nine in intensity, and ten in connected speech, manual skills, and structural adequacy. Satisfactory did not mean that further improvement was not necessary. Ten students still need help in reading, written language, speech reading, auditory discrimination, eight in resonation, and four in articulation and respiration, three in pitch, timbre, and one in intensity and connected speech.

Education: Some of the Difficulties Faced by the Partially Hearing

The students in Group B had attended educational programs in schools for the deaf and in public schools which were not designed to meet their particular needs. Only two students in this group were sufficiently well prepared to compete with normally hearing peers at the post-secondary level unless they were provided with supportive measures.

Past educational performance and success on the Project were complicated by varying levels of individual ability, emotional maturity, and motivation, as well as the educational achievement levels and extent of efficiency in speech and language skills. Many of the problems were similar to those of the manually oriented deaf of Group A who were not prepared to adapt to the normally hearing community.

Characteristics of the Students in Group B in the Area of Education

Pre-project educational backgrounds. Four members of Group B spent both elementary and secondary programs entirely in a school for the deaf. Six students were in the regular public school classes for approximately six years during their elementary school training. The latter attended the high school department of school for the deaf. One member of Group B had attended two college-level programs for normally hearing students before entering the Project. He had failed both programs in spite of a superior level of intellectual functioning.

As a result of the mixed educational backgrounds in Group B, the range for attendance at a school for the normally hearing was 1.5 to 8 years with a mean of 6 years for seven students. The range for attendance at a school for the deaf was 3 to 14 years with a mean of 8 years for ten students. The mean number of attendance per student for all types of schooling was 10.7.

All ten students completed deaf high school. Five students achieved an average grade of "C" and five students had a "B" average.

Seven students had lived at home during their attendance in the public school programs. All had been residents of the schools for the deaf when they were studying there.

Intellectual functioning. The IQ range for students in Group B was from 84 to 133, with a median of 103, and a mean of 105.

Educational achievement levels. The range of grade levels was fourth-to-ninth grade, with a median of sixth and a mean of 6.4, as reflected by their Stanford Achievement scores.

Comprehensive Supportive Program in Education for Group B Students

Earlier in this section, some of the adaptations of communication media and their relationships to the educational problems and needs for supportive measures were discussed. Moderate deficiencies of language skills dictated educational placement more than the hearing levels.

The students in Group B participated in the following educational programs:

a. undergraduate liberal arts program (major undecided)--1 student
b. restricted technical training course (electronics)--1 student
c. regular secretarial training--1 student
d. restricted secretarial training and atypical program in IBM--1 student
e. regular trade program (printing)--4 students
f. atypical program (office skills)--2 students (includes on-the-job training)
g. on-the-job training (check sorter)--1 student (includes 1 atypical student).

Liberal arts program. The student in the liberal arts program was capable of studying practically any area he wished. Tutoring or taped lecture notes were satisfactory supportive measures.

At first, he identified with the deaf students in Group A and refused to wear amplification. As soon as he became convinced that it was essential for him to function in the hearing community as well as that of the deaf, his speech reading and residual hearing proved to be of great assistance.

This member of Group B had failed in his two previous attempts to attend college: Gallaudet and a college for normally hearing students. He would probably have succeeded at Idaho State University if he had entered during the second year of the Project when adequate personal adjustment programs were organized.

Restricted technical training. The student in electronics required special help from the instructor. Preferential placement enabled him to use his speech reading and residual hearing to great advantage. Since he was unable to function at the level of the courses in theory, English grammar, and technical writing, he substituted the advanced educational adjustment courses at the Speech and Hearing Center for the former courses. His preparation was officially designated as electrician rather than electronics technician since he had been unable to fulfill all of the academic requirements.

Regular and restricted secretarial training. One of the members of Group B was an excellent student in the regular secretarial training course. She also served as interpreter for the student from Group A and the one from Group B who needed manual interpretation to follow the classwork.

The latter student from Group B was trained in restricted secretarial training because of her deficient language background. This student's vocational goals were quite unrealistic, and she used a stiff elbow as an excuse not to be able to follow the courses recommended by the Project Staff. Special conferences with her medical specialist, her family, and a potential employer finally convinced her that the elbow did not need to become a disability. She was then given atypical training in IBM and was satisfactorily placed as an IBM operator. Increased maturation, improved self-concept, and heightened motivation contributed to the greater success of the second training attempt.

Atypical programs. In addition to the above-mentioned student, two other students were given training in office skills in the atypical programs. One of the girls was sufficiently prepared at the end of the first year to be able to enter the regular secretarial training course the following year.

The second girl was given on-the-job training in order to complete her preparation. She became an exceedingly able check-sorter.

One of the partially hearing students was refused by the Project Staff the first time he applied because acceptance was restricted to persons with severe-to-profound losses. Originally, the problems of the partially hearing student who should have been functioning as a hard of hearing person but whose language skills were so deficient that he could not study satisfactorily in a program for normally hearing students was not understood by the Staff. Fortunately, the restrictions for acceptance were lifted and this particular student was finally located for the third year of the program.

During the formal testing procedures, this student was rated as having poor motor coordination and no particular aptitude. After spending a year in the atypical programs and in the transitional vocational experience, he demonstrated a seriousness of purpose, an improvement of skills, and was successful in all aspects of the assigned programs.

At the end of this first year, he refused a vocational placement in a warehouse office as a clerk and decided to enter a technical program for further training. This decision was fully endorsed by the Project Staff.

Regular trade programs. Although the students in printing were highly successful, it was felt that their selection of occupation was based on identification with the deaf and a lack of awareness of the broad spectrum of opportunities open to them as participants in a normally hearing training program. If these students had entered the Project later, it is possible that they would have been counselled to enter some other occupation.

Educational adjustment programs. All of the students in Group B, except the one in regular secretarial training, participated in educational adjustment programs. Although the students who were on the Project the first year somewhat resented the after-school-hours classes, the value of the additional help became evident before the end of the term, and no further difficulty was experienced in requiring the students to attend.

Group B students called for many types of supportive communicative and educational measures because of their lack of experience and initial resistance to identification with the normally hearing community. As each student became better adjusted and more highly motivated, the modifications of the communication media became easier and simpler, and the functioning of the students within the educational programs more effective.

Orientation: Some of the Difficulties Faced by the Partially Hearing

The members of Group B did not follow the usual behavior patterns which audiologists, speech pathologists, psychologists, social workers, and perhaps even some educators of the deaf, had been taught to expect of a limited hearing population. On the surface, it appeared that this Group would be the most easily integrated in the normally hearing facility, but in actuality, the personal-social orientation of the partially hearing students presented the Project Staff with some of their most complex problems.

Testing of the partially hearing students may have been colored by certain factors inherent in testing populations with some language delay. This problem was described by Arthur Neyhus (1964):

> The emotional maladjustment of young deaf persons reported by many other investigators was found to continue in a sample of 80 adults despite favorable socio-economic circumstances, superior educational achievement, and above average intelligence. Since language facility was found to be a significiant factor in performance on projective tests of personality, further research would clarify whether the inadequate verbal ability of the deaf conveys a distorted impression of their emotions and perceptions, allowing individuals with better language to give a more accurate description of their reactions; or, if the projective tests are revealing the true behavioral functioning of the deaf, whether those with more language are better able to cope with unstructured stimuli such as the Rorschach, while those with limited language are more susceptible to disturbance in the face of such stimuli. Finally, it must be determined whether a mature ego and emotional identification with the environment can develop in those who from early life, have been deprived of normal language development.

Characteristics of the Students in Group B in the Area of Orientation

Marital status. All members were single.

Recipient of previous financial help. Pre-project help had been accorded one student by the Department of Public Assistance.

Student attitude toward entering program. Nine of the first-year students were not convinced of the value of entering the program.

Family attitude toward the program. The families of nine of the students encouraged them to enter the program.

Reported treatment during childhood. Only one student felt his parents had discriminated against him in comparison with his siblings.

Levels of emotional maturity and corresponding supportive programs. It was only after a period of observation and functional analysis by the various disciplines represented in the Project that the dynamics of the partially hearing were understood.

The supportive programs which provided a base for activities related to the "known" could proceed gradually to the "unknown". As success was experienced in new associations, the transition brought about a conversion of fear and hostility to positive attitudes. The students entering the Project the second year had the advantage of observing the satisfactory changes which had taken place in the first year students. The greater understanding on the part of the Project Staff in relationship to the needs of partially hearing students also played an important part in guiding the second and third year project programs.

Improvement in all types of activities seemed to be in relationship to personal and social adjustment, irrespective of the existence of hearing loss, *per se*. The emotional maturity of the students was analyzed according to the scales considered "normal" for hearing students, and progressively sophisticated opportunities for experience were provided. Careful observation was made of the reaction and change in each of the students. When he appeared to accept the level of "planned experience", a higher level of "personal-social functioning" was provided.

As the program progressed, the members of Group B began to make better use of their amplification and oral-aural skills. They gradually developed into the leaders of the students in Group A and were able to assist in the amalgamation of the manually oriented. Group B students also began participating in social activities with their normally hearing peers both on and off the campus.

Learning to be a liaison between the deaf and the normally hearing was an unsettling experience and demanded competent counseling services. When the partially hearing had firmly established their new, dual-role, self-concept, they were looked up to by the Group A students because of their greater competencies in the normally hearing community.

Developmental orientation activities. A Club of the deaf and partially hearing students was established. Experiences in leadership were fostered by the Club. Turns were taken in being president and in planning the social activities. The psychological needs of the various students were analyzed, and related responsibilities were assigned.

A study of the communication carried on by each individual in the group was made. Although the plans and leadership rested with the students themselves, observation of their behavior was used as a basis for counseling. Many of the students who had formally identified only with the deaf, and who were socially immature because of lack of contact with a normally hearing culture, gradually expressed a desire to join in the activities of their normally hearing peers. Through counseling they were encouraged to identify with both groups and to assist the deaf students who appeared less able to make the transition from the deaf sub-group.

Students in Group A and B who should have been dating the opposite sex were still interested largely in group activities of their own sex group. A psychological study was made of the majors in the Department of Speech Pathology and Audiology and those who it was thought would be best suited to undertake the social orientation program of the deaf and partially hearing students joined the Club. This association appeared to be rewarding to the members of Groups A and B, and as a result of successful association with normally hearing associates, the deaf and partially hearing students became interested in out-of-the Club contacts and began dating peers from the regular campus student body. These latter activities were managed entirely by the limited hearing students themselves without suggestion or help from the Project Staff. These contacts and behavior patterns appeared to be a logical outcome to a developmental personal-social program designed to meet the needs of each student at his own point of maturity.

As the Club activities became more sophisticated, the members of Group C, the oral deaf and hard of hearing students, joined. At last, the oral and nonoral deaf were mutually acceptable. It was possible to demonstrate that modes of communication need not set up barriers.

Counseling. Some of the students in Group B had severe emotional problems and social work counseling was made available to them. Some resented authority and would not cooperate in the classroom. Some had difficulties in getting along with their roommates. One student was so dependent upon his mother that he refused employment at the end of his training. When counseling was offered him, his mother refused to allow him to return to the University to receive help.

The one student who was asked to withdraw from school because he "flunked" his school work as a way of rebelling, returned after his dismissal and tried to stir up the other students. This student attended the program before adequate counseling was available.

Family counseling. Family orientation was part of the program. In an area where traveling long distances curtailed family contact, this aspect could not be carried out as fully as was needed. The attitudes of the parents often interferred with the personal maturation and independence of the project students. Many of them had been overprotected or had had to face very complicated situations as a result of their hearing loss.

Emotional closeness between the students and their families was striking. Three male students from broken homes exhibited emotional upsets--two demonstrated withdrawal tendencies and one was hyperactive. Those students whose families cared did better in school.

The majority of the families, however, supported the Project and appreciated its importance in the vocational preparation of their children.

Socio-economic status. Many of the students came from low socio-economic families and post-secondary training on any level would have been impossible without financial assistance. Many families could send no money to the students, so work programs were provided to supply spending money. The need to earn their own money for dating and personal expenses was essential to the implementing of motivation and acceptance of pressures which might be absent in some students who come from institutions or wealthy families.

The partially hearing students made a dramatic improvement during their time on the Project and demonstrated the ability to make good adjustment to both the deaf and normally hearing communities.

Vocation: Training and Experience for the Members of Group B

When the phrase "opportunity for the limited hearing" is used, it should be qualified. What may be opportunity for one deaf person may not be for another. This is even more true when it is applied to the group of partially hearing persons who are usually "loosely included" among the deaf or the hard of hearing.

Characteristics of Group B Students in the Area of Vocation

Previous vocational experience. Three students had been in domestic and one in personal service. One had been a farm hand, one a presser, one a dishwasher, and one had had some experience in cabinet making.

None had worked before the onset of his disability. Eight had worked afterwards.

Previous vocational training. One boy had received substantial preparation in shoe repair at the School for the Deaf. Another had been trained in cabinet making, and six had received instruction in printing. All of the girls who had attended a school for the deaf were well prepared as homemakers. They were excellent seamstresses.

Unawareness of vocational training opportunities. See this part under Group A for discussion of the unawareness of Group B students concerning the vocational training opportunities.

Transitional vocational experience. The members of Group B exhibited similar characteristics to students in Group A when they were given their first transitional vocational placements. Details are given in the previous part under Group A.

Group B students were eventually placed in the transitional vocational programs as planters and delivery boys in a greenhouse, a carpenter, a baby sitter and a janitor. One girl helped with the house work in the home where she lived. Two served as interpreters for the Staff and Faculty at the University. This was their second transitional vocational placement experience;.their first placements having been highly unsatisfactory. See the description under Group A.

On-the-job training. Two of the girls with secretarial training--one restricted course with additional IBM training, and the other from the atypical program in office skills--were given on-the-job training in a local bank.

Vocational placement. The two girls described above were given permanent positions in the bank: one as a check sorter and one as a machine operator.

Shortly after the termination of the Project, two of the girls married. A third girl began working at the Atomic Energy Commission where she received several pay raises during her first year. She worked as a photo copier and typist.

Three boys were successfully placed as printers, and one became an electrician for a trailer company.

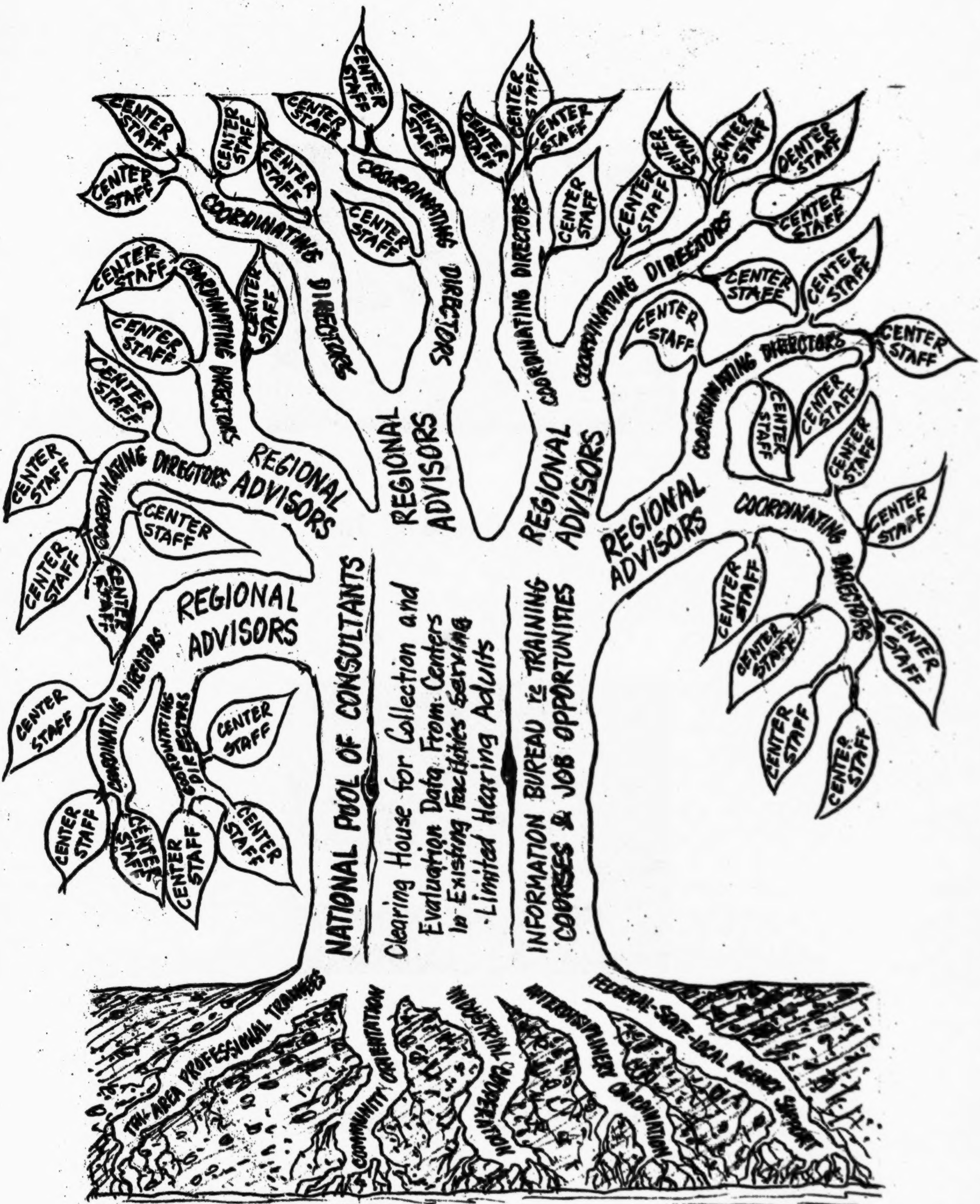
One student trained in the atypical programs planned to continue his studies at the School of Trade and Technical Education. The student who had been dismissed during the first year of the Project applied for readmission, stating that he now realized the necessity for further training.

Occupational satisfactoriness. Seven of the seven students placed were rated high in employer satisfactoriness.

Occupational satisfaction. Six students rated their placements as better than their deaf friends. One said his placement was not as good. Five thought their jobs equally good when compared with normally hearing persons, one not as good, and one thought her job was better.

All seven considered their salaries competitive with the normally hearing employees.

One reported that he rarely needed good speech on the job, three said they used oral expression frequently, and three said they were required to speak continually.



NATIONAL INTEREST IN PROVIDING EDUCATIONAL OPPORTUNITY FOR DEAF AND HARD OF HEARING ADULTS IN EXISTING EDUCATIONAL FACILITIES

Exploratory Skills Unit

Graduate Program

Oral Deaf and Hard of Hearing*

Supplication**

A soul's longing for freedom; a voice raised in supplication to a higher, stronger force. Who has not heard this cry? Surely, we find its echo in our hearts. We recognize it as our own, for have we not experienced this? In every life there are troubles that overwhelm us: we cannot cope with them unaided.

It is in this common human experience that we find that sincerity lends dignity, that humility does not grovel, and that faith does not weaken.

Suffering is for the strong, for it requires strength to endure; but to endure without attempt to find release is to be enslaved. Intuitively, we know that we are not slaves, that our appeals are worthy of divine attention. Therefore: when we are reduced to the limit of our resources, we tend to draw upon that other, limitless resource.

Our highest aspirations often are realized in the nadir of our existence, for it is then that we are stripped of all pretension and conceit and become our true selves. Only that which is good remains; our good selves are our true selves.

Men vary in the amount of good contained in them. The smaller this amount, the harder it is to discover; we grope blindly in the dark, reaching for the light above...

Elnora Cheney (1965)

Dear Miss Switzer:

I would like you to accept this World, I Hear You*** as a token of gratitude for your interest and support that has made it possible for one like myself to receive the benefits of an advanced education.

It has meant much to me personally as this is the only such opportunity I have had.

Sincerely,

(signed) Elnora Cheney

*Group C: Deaf and hard of hearing students with congenital or early childhood losses and mild speech and language deficiencies.

**Photograph of sculpture, Supplication, on back cover.

***Photograph of sculpture, World, I Hear You, on front cover.

Who speaks for those who have suffered an adventitious, profound loss in middle childhood, the progressive hearing impairment with profound loss in young adulthood, the unaided severe mixed loss from birth, the moderately hard of hearing educated with the deaf and the partially and normally hearing? Are these people not representative of a vast number of persons inadequately identified and mostly left to seek their own way along a poorly marked terrain of the "no-man's land" of the oral limited hearing populations?

Hard of hearing. O'Neill (1965), Marion Downs (1962), and Robert Roach (1953-1954), have long been interested in the hard of hearing. O'Neill stated:

> Hard of hearing children, unlike deaf children, can develop a symbol system. They do, however, miss important things and misunderstand others. Slowly but surely, they lose out in competition with their fellows. They may be labeled as uncooperative, mentally defective, or emotionally disturbed. They are allowed to stay in a normal environment, but they cannot fully interpret it.

Often unrecognized as under-achievers by audiologists, speech pathologists, and educators of the deaf, the hard of hearing have struggled with poor auditory discrimination in subjects involving comprehension of spoken language in a background of noise, and as a result of poor performance, received the rejection of parents and teachers. Although their impairment often appeared insignificant on the audiogram, it had a profound influence on their educational, personal-social, and as a result, upon their vocational adjustment.

> O'Neill (1965) pointed out that it has not been demonstrated that the problem, *per se*, with the hard of hearing is a language deficit. The crux of the problem may be the need for combining sensory inputs in order to establish improved receptive patterns. He also indicated that auditory training has been construed to mean "putting something on a person's head" and that the time has come for auditory training and speech reading to "become something meaningful."

Measured against the nonoral deaf, educationally and vocationally, the performance of the hard of hearing is often described as satisfactory. This concept has not taken into consideration what the level of their performance might have reached if supportive measures commensurate with abilities and disabilities had been made available to them.

The concept of "hearing--adequate for normal speech and language development" has been interpreted to mean "hearing--functional in educational and vocational placements." These conditions are not necessarily synonymous.

Blair (1957) has written about the discovery, differential diagnosis, and initial training of the young hard of hearing students in educational programs for the deaf.

A headline in the Alexander Graham Bell Association *Reports* (1966) read: "DID YOU KNOW...1 OUT of Every 20 School Age Children Has a Hearing Loss?"

"The need for a comprehensive evaluation of hearing impairment seems self-evident yet not all children who have been identified as needing further attention receive it." Don A. Harrington (1963) pointed this out in regard to the young child. It holds equally true for the younger and older adult experiencing vocational training and retraining.

Even in the less severe losses, the importance of individual differences was pointed out by Albert Koch (1961):

> There is a vast difference between individual performance if we measure this as an outcome of hearing loss function itself. There is a characteristic that a very capable man once described about hearing, about listening, which we term "auding"....It apparently is that characteristic which sets these two children apart; one child is able to aud, or psychologically receive and integrate that which he hears, and the other child cannot. And this is the primary difference between the two and yet we classify them as hard of hearing and treat them the same.

Postlingually deaf from childhood. "Although hearing loss leaves no visible defacing mark, it may alter profoundly all normal relationships at home, at school, at work and play." This description by Margaret Lane Washington (1958) is apropos of the oral deaf student attempting to attend a normally hearing facility. He may be even more out of place if he is attempting to attend a facility for the manually oriented deaf.

Progressive losses. Washington (1958) continues:

> Adolescence is a time of emotional strain under the best of circumstances. For the young person with progressive hearing loss it may be a time of almost unbearable anguish. As his hearing recedes his whole world recedes; with each lessening of contact with the world around him he "dies a little," and his days become burdened with uncertainty and confusion.

General Characteristics of Students in Group C

Introduction. The limited hearing students of Group C consisted of deaf and hard of hearing students with congenital or early childhood losses and mild speech and language deficiencies. Some of these losses had been progressive, leaving the students severely deaf; others were mixed losses with no amplification used before the Project, causing the students to function as severely deaf persons.

One of the deaf students was a product of a public school program which had had no specialized procedures or personnel to help an auditorily impaired child. In some ways, she was much more isolated than the members of A and B who identified with the manually oriented deaf.

A second student had received almost no education. Both of these students functioned in a normally hearing milieu but in a tragically poor personal-social and vocational situation.

Number of students. Group C was composed of seven students.

Sources of referrals. Three of the students were sent by the Department of Vocational Rehabilitation. Three were referred by speech and hearing clinicians.

Time on the Project. Four students spent one year, two spent two years and one completed three years.

Chronological age. The age range was from eighteen to forty-seven years at admission to the Project. Two were eighteen, two were twenty-one, one was thirty-six, one was forty-five, and one was forty-seven years of age.

Sex. Two students were male, and five were female.

General health aspects. Two of the students in Group C were in fair general health, and five were in good health at the time of admission to the Project.

Vision. Two students had severe impairment of vision which was only partially corrected, four had moderate impairment, and one had a slight impairment, all of which were satisfactorily corrected.

Motor coordination. Only one student had a mild impairment in motor coordination. This condition influenced her typing, speech and gait.

Other health aspects. One student was born with a cleft palate and with dwarfism. The first condition had been satisfactorily corrected through a pharyngeal flap operation. One student had a skin problem.

Diseases. One student reported a medical history of arthritis, one of cancer, four of chicken pox, one of meningitis, four of mumps, two of occasional otitis media, one of chronic otitis media, five of rubella, and one of scarlet fever.

Operations. Four adenoidectomies and five tonsillectomies had been performed.

Communication: Some of the Difficulties Faced by the Oral Deaf and Hard of Hearing

The hard of hearing students in Group C who had been educated in schools for the deaf displayed a confused self-image. They were not able to identify with the manually oriented deaf as comfortably as the partially hearing students. At the same time, their language development and educational achievement levels were so markedly inferior to their normally hearing associates that they were unable to compete in the existing programs.

Those students demonstrated that the programs in the schools for the deaf and those in the public schools which do not provide supportive measures are not suited to the needs of hard of hearing children and youth. They seemed to be somewhat closed out from both the deaf and the normally hearing spheres of influence.

Characteristics of Group C in the Area of Communication*

Progressive losses. Three of the students had losses which became greater as they became older: one lost part of his hearing at the age of four and then became profoundly deaf from meningitis at the age of fourteen. At the time of entrance to the program, he had an average of 85 dB. The other student had a 56 dB average in the speech frequencies (500-2000 c/s--ASA 1951). The third student was classified as hard of hearing.

Mild-to-moderate losses. Even the student with the average of 18 dB in the speech frequencies was unable to attend the standard curriculum of the Liberal Arts College without supportive measures. Although he was highly motivated, his educational preparation and achievement level were poorer than that of his normally hearing classmates. He had been rated as a "C" student in the School for the Deaf. His level of functioning seemed to confirm the type of difficulties now becoming recognized in regard to the education of the hard of hearing child.

Congenital losses. Two members exhibited sensorineural hearing losses which were reported as congenital. One had a 48 dB average and the other a 95 dB average in the speech frequencies.

Although the first girl had not distinguished herself scholastically, she was highly motivated, and her family was interested in securing further educational opportunity for her. Past educational performance was not encouraging, but it was decided that she should be given an opportunity to enter the liberal arts curriculum. Her success seemed too improbable to make any definite plans for a choice of curriculum.

One of the older students was tested audiometrically many times, and at no time did she give responses better than 95 dB average, with no response to the bone conduction testing. Yet she was found to discriminate auditorily with amplification far better than her audiogram would indicate: her aided discrimination score was 64%. Her entire progress in receptive and expressive skills belied the degree of loss that was shown by the audiogram, and it could only be concluded that for some unknown reason she was not responding at threshold to the pure tone tests. Her emotional problems did not seem to be of a degree or type that would place her in the psychogenic category, but this possibility could not, of course, be ruled out. Her loss was evidently congenital, according to her history, but the exact etiology was never determined. The true status of her hearing must, therefore, remain an enigma.

Mixed losses. It is generally thought that individual with conductive or mixed losses should be adequate enough in their functioning not to require many special considerations. The fact that this is not always true was illustrated by the students in Group C.

One of the students had been completely neglected so far as educational or social needs were concerned and was functioning at an extremely low vocational level despite the fact that her bone conduction hearing was around 40 dB average. The other, with perfectly normal bone conduction, was operating at

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*Table 27 provides pre and post-program ratings in communication skills, rate of improvement, and need for additional help.

TABLE 27
GROUP C (N=7): COMMUNICATION SKILLS

Aspect	Pre-program Ratings			Post-program Ratings			Rate of Improvement			Satisfactory		
	Unsat. Poor	N.Impr. Fair	Satis. Good	Unsat. Poor	N.Impr. Fair	Satis. Good	Unsat. Poor	N.Impr. Fair	Satis. Good	Admission	Termination	Added Help
Structural Adequacy	(1 repaired cleft palate) 0	0	7	0	0	7	0	0	0	7	7	0
Respiration	2	2	3	0	0	7	0	0	4	3	7	4
Phonation												
Pitch	5	0	2	0	0	7	0	0	5	2	7	5
Intensity	3	2	2	0	0	7	0	2	3	2	7	2
Timbre	5	0	2	0	0	7	0	0	5	2	7	5
Resonation	1	4	2	0	0	7	0	0	5	2	7	5
Articulation	2	3	2	0	0	7	0	0	5	2	7	2
Connected Speech	1	0	6	0	1	6	0	0	1	6	6	1
Written Language	1	0	6	0	1	6	0	0	1	6	6	1
Auditory Discrimination (Aided)	3	3	1	3	3	1	3	0	0	1	1	7
Speech Reading	0	0	7	0	0	7	0	0	0	7	7	3
Reading	1	0	6	0	1	6	0	0	1	6	6	2
Manual Skills	0	0	1	0	0	1	0	0	1	1	1	0

Ratings: unsatisfactory = poor, needs improvement = fair, satisfactory = good

The above ratings were made in comparison with communication skills of normally hearing persons. Rate of improvement was not necessarily in direct relationship to ratings of pre and post-program change.

a much lower level than her hearing level would indicate. Her aided discrimination was only 76%.

The latter student had spent sufficient time at the School for the Deaf to identify herself partially with the profoundly deaf and used manual language for her communication with her deaf friends. With hearing people she was able to communicate orally quite well. She used a hearing aid, but this avenue was not as satisfactory as the audiogram would lead one to expect. She was observed to be quite dependent on speech reading and did not score high on auditory discrimination tests. The etiology of this loss was recurrent otitis media and mastoiditis, and had culminated in several operations to control the infections but not to restore hearing. The Consulting Otologists did not feel it was possible to improve the hearing through further surgery.

The other member of the group of students with mixed losses had a 43 dB average bone conduction loss, with an air conduction loss of 85 dB bilaterally. The etiology of this loss was not specifically diagnosed, but it was probable that it was due to a congenital anomaly of some sort. This individual had other congenital anomalies including dwarfism, cleft palate, and cataracts.

Both of these students had worn hearing aids part-time for many years, but neither was receiving optimum benefit from their aids. The student with a mixed loss and normal bone conduction wore her aid only intermittently, probably because of her habitual association with deaf students with whom she used manual language.

The student with the multiple handicaps had worn her aid continuously and was quite dependent upon it, but the fitting she had was not ideal. She depended heavily on speech reading to supplement the aid. Because of reduced visual acuity, her comprehension at a distance from the speaker was gravely lacking. Her discrimination of 68% with the aid was better than might have been predicted under these circumstances, and in comparison with the other student who had normal bone conduction, it was quite remarkable. The latter had been educated almost entirely with deaf students; the former had lived in the normally hearing community.

The major need of both of these students was to implement their hearing aid used by means of improved fittings, auditory training, and encouragement to use their hearing.

These two students served to demonstrate that inadequate or inconsistent educational experiences, improper identification, and/or concomitant emotional problems may result in depressed social and/or vocational adjustment, in spite of what appears to be a potentially well-functioning auditory avenue. Their particular challenge to the Project Staff could only be met by using community resources in addition to those available at the University.

Reported etiology of hearing loss. The students reported the following causes for their hearing losses: chronic otitis media--1, meningitis--1, scarlet--1, and gun blast--1. Three stated that they did not know the cause.

Degree and onset of hearing loss. Five hearing losses in this Group were sensorineural and two were mixed. The degree of loss was discussed earlier in this section. The range was from less than 20 dB to 95 dB average (500-2000 c/s, ASA 1951).

Four of the Group had descending types of audiograms in which the hearing in the low frequencies was fairly normal. The fifth had a trough-shaped audiogram of 85 dB average. Reported time of onset varied from birth to seventeen years of age; several reported progressive losses, but the age at which the losses had reached the levels demonstrated in pre-program testing could not be ascertained.

The onset of loss was at birth in three cases, one before three years of age, and three postlingually.

Use of amplification. Three students reported that they had not used amplification before entering the Project. Two had been part-time and two had been full-time users. All of the students appeared to benefit from improved understanding of the proper use of hearing aids and from training with them. One of the students who had never used an aid did not seem to develop any useful auditory perception so was not fitted with amplification.

Aided discrimination scores. Discrimination scores for Group C were the following. One student had no response, two had scores of 64%, one of 68%, two of 76%, and one of 88%.

Communication skills. At the time of admission, six had well developed speech and language; one had only fair speech and poor language. They all needed speech conservation measures. See Table 27 for pre and post-program scores.

Structural adequacy for speech was satisfactory for all students even though one had achieved this through a pharyngeal flap operation. Poor ratings were given to two in respiration and articulation, to five in pitch and timbre, three in intensity and to one in resonation, reading, writing, and connected speech.

Fair ratings were given to two in respiration and intensity, to three in articulation and to four in resonation. Good ratings were given to three in respiration, two in pitch, intensity, timbre, resonation, and articulation and to six in connected speech, reading, and writing.

Speech reading. Upon admission to the Project, all seven were rated as having good speech reading skills. Some of the students in Group C demonstrated that good speech reading skills supported by good residual hearing, even if only in the lower frequencies, made it possible for the bright, motivated, and well-adjusted students to succeed in almost any educational area--as long as amplification and supportive measures were provided. Educational placement, however, was contingent upon the ultimate vocational placement considerations such as noise levels, progressive losses, and discrimination for speech.

The graduate student in the College of Education and three other students were able to pursue academic studies successfully because of superior speech reading skills.

Comprehensive Supportive Program in Communication for Group C Students

Auditory avenue. Every student was given an individual auditory assessment to determine the degree to which he would benefit from amplification. Re-assessments were made three times a year. New aids were recommended and former aids repaired.

All but one student received an hour-and-a-half a week of auditory training. He did not appear to be able to develop any useful discrimination ability so he was dropped from the auditory training program.

Exercises in speech reading, with and without auditory clues, were given several times a week using the audiometric testing suites and controlled auditory input. Emphasis, however, was upon functional listening with the individual aid in classroom or social milieu.

Oral expression. Speech improvement and speech correction sessions were set up for those students who needed help. Two or three sessions a week were organized. The students in the Liberal Arts College attended the standard freshman speech course.

The student with the pharyngeal flap operation improved her speaking to such a degree that after two years on the project, she was invited to become a member of the Toastmistress' Club. She became an able public speaker and was socially and professionally well adjusted in spite of her multiple handicaps. Although she had had no formal education, she acquired an excellent vocabulary and well developed skills in composition.

The student who had displayed the greatest repression of communication skills and a low educational achievement was, fortunately, highly motivated. She benefited greatly from amplification and developed remarkably good oral expression in spite of audiometric results which showed a profound hearing loss.

Communication with normally hearing associates. There was no problem in communication with the Project Staff and the regular personnel at the university. Only two students showed some difficulty at admission because their speech was not highly intelligible, but both worked eagerly and soon were able to communicate satisfactorily. The normally hearing associates soon became aware of the project students' need to use speech reading.

Adaptation of Communication Media for Presenting Educational Programs

Although preferential seating and amplification were of primary importance for students in Group C if they were to achieve their educational potential, additional supportive measures were necessary.

The hard of hearing students needed tutoring and weekly check-ups with the instructors just as much as the deaf students. Notetakers were furnished for the undergraduates and taped-typed instructors' notes were made available to the graduate students. The three students in the atypical classes did not need tutors nor notetakers.

Success was not achieved through the adaptation of the communication media only, but through comprehensive supportive measures in education, orientation, and vocational transitional experience.

Rationale for Grouping

It was not within the province of this report to postulate why some of the congenitally deaf from Group C achieved better communication skills than those in Group A. Many of them, of course, had less severe impairments, had mixed losses, or had developed their severe hearing disabilities as a result of progressive elements, but others had become deaf prelingually, just as Group A students.

The educational background of the Group C students was predominately public school programs for the normally hearing. With two exceptions, all had done well.

Results and Evaluation of Communication Supportive Program for Group C

With the exception of three students who continued to receive poor ratings for auditory discrimination and one who was rated only fair in connected speech, reading and writing, all students in Group C improved their skills to a rating of good in every aspect.

Rate of improvement. Except for three students in auditory discrimination and two in intensity, all who were not rated as satisfactory at admission received ratings of good for improvement.

Satisfactory at admission. Structural adequacy and speech reading were rated as good in both pre and post-program evaluations. Six were satisfactory in connected speech, reading, and written language both pre and post-program.

Only three in respiration and two in the other oral expressive aspects had been satisfactory upon admission. All were rated as satisfactory on their post-program evaluations of these areas.

Additional help. All seven needed additional help in auditory discrimination, five in pitch, timbre, and resonation, four in respiration, three in speech reading, two in articulation, reading and intensity and one in connected speech and written language.

The majority of Group C students were functioning at an educational level higher than that of Groups A and B. Improvement in reading and written language was not reflected in the ratings.

Except for the profoundly deaf student who had attended a regular public school program, the superior speech and language of Group C eliminated many of the difficulties faced by the members of Groups A and B.

Education: Some of the Difficulties Faced by the Oral Deaf and Hard of Hearing

O'Neill (1965) described the hard of hearing child in the following manner:

> It would appear that the average hard of hearing child shows a slight retardation in intelligence--particularly in verbal performance. At the most, retardation amounts to no more than six months to one year....
>
> The hard of hearing child is frequently described as slow, inattentive, and a behavior problem in school. One study indicated that hard of hearing children were not as well accepted by their classmates as were normally hearing youngsters. Other studies indicated that the hearing handicapped child makes academic progress quite comparable to that of normally hearing youngsters. Academic progress seemed also to be related to the severity and duration of the hearing loss.

O'Neill (1965) quoted another study (Steer, Hanley, Spuehler, Barnes Burk, and Williams, 1961):

> The hard of hearing children who were in a regular classroom were judged by their teachers to be significantly lower in classroom performance than normally hearing pupils. It was also found that these hearing impaired children were inferior in reading and arithmetic achievement and somewhat inferior in spelling achievement. The hard of hearing children in special classrooms showed academic achievement directly related to the degree of hearing ability. The better the hearing, the better the academic achievement. These pupils also tended to be below their normal grade placement in terms of chronological age.

The Project Staff felt that the remarks by O'Neill were applicable to the problems faced by the hard of hearing students participating in the Project. During the first year, no hard of hearing students were accepted. Several of the rejected applicants entered the regular academic and technical programs on their own initiative. Since their language skills and speech reading ability were not sufficiently developed for them to compete easily with their normally hearing classmates and no supportive measures were available to them, they were forced to drop their original choices and enter trade courses.

Upon observation of the difficulties encountered by the hard of hearing students, the Project Staff decided to broaden the criteria for acceptance into the Project. Anyone whose hearing loss interferred with his educational placement was provided with whatever supportive measures were needed to help him reach his educational and vocational potential.

Characteristics of Group C in the Area of Education

Pre-project educational backgrounds. Students in Group C had attended standard educational programs in the public schools for the majority of their school years. The range of attendance was from one-half year to fourteen years with a mean of 10.3 years for the seven students. This mean was distorted by the one student who had attended only the one-half year. Otherwise, the mean figure would have been twelve years for each student.

One student had completed a bachelor's degree. One other student had spent two years in a special preschool class for the limited hearing. He displayed excellent speech and language skills. Three students had spent short periods at a school for the deaf. Attendance at schools for the deaf represented a mean of 1.3 years for the three students. Their time there ranged from one-to-two years.

Intellectual functioning. The range of the intellectual functioning was 80 to 125 IQ with a median of 110 and a mean of 109.3.

Educational achievement levels. The range of the educational achievements as shown by the Stanford Achievement scores was from the third to the twelfth grade level with a median of ninth and a mean of eighth grade. One student began her project studies at the graduate level and the year in school was not reflected in the range and mean just given.

Students entering the Colleges of Liberal Arts or Education were required to take the battery of tests given all students at the University.

Need for supportive measures in education. Although the deaf members of Group C had been in constant contact with the normally hearing community, their aims for educational and vocational placement were not realistic.

Past educational experiences of the Group C Students were not a dependable basis for predicting and selecting programs for them at the post-secondary level. This Group needed an opportunity to explore, experience, and thus, to comprehend the range of training available to them, even as the students from Groups A and B.

A dramatic change in functioning was shown by the woman who was on Welfare and rated as only educable and as extremely unlikely to succeed in any aspect of the Program. Her case was one more illustration that some deaf individuals can achieve beyond what may be predicted by present testing procedures.

A description of the above-mentioned student's background and lack of familial comprehension is illustrated by the teacher's report which was made during her attendance in the Educational Adjustment Program (Jackie Ball, 1965):

> She was listless and not interested in reading books. She had a habit of rolling her eyes or turning them far to the side to keep from looking at the person with whom she was talking. We started with arithmetic because she could add a

> little. She watched as one of the students did an example of long division and said that she would someday like to do that. I told her that she could do it in a few months if she worked hard--so she really tried. Once she found out that she could learn, she was a good student.
>
> Her posture was poor, her walk was without vigor or purpose. Her whole attitude was one of "I don't care." After she became more confident in her studies, I started to work on her general appearance. She responded to praise and did not rebel at criticism--so I just said "Sit up--walk with your shoulders back--look alive or everyone will think you're dead."
>
> Her father visited her near the end of the year and told her "You can't learn nothin' from them books. You're just wasting your time." She said, as she pounded the table, "By God, I am learning something. More than I ever learned before and I'm not wasting my time." (Jackie Ball, Instructor).

Description of the Educational Programs and Supportive Educational Measures

Liberal Arts undergraduate program (3 students). One of the students who insisted upon entering the Liberal Arts College was counseled to choose some trade or restricted technical field. Since it had been demonstrated in the cases of other project students that accurate appraisals of potential were difficult to make, he was permitted to attend freshman academic courses in spite of an intellectual capacity which was below that estimated for successful college-level training. Even with supportive measures he had difficulty competing with other students. When he left the Project in order to go on a religious mission, it was suggested to him that upon his return, he should consider entering another type of program which would be more appropriate to his needs.

A second student was accepted for a "trial period" upon insistence by her family. The Vocational Counselor from her state was willing to go along with this plan in spite of a poor high school record. In contrast to the moderately hard of hearing student described above, this student was profoundly deaf with extremely poor discrimination for speech. She was an excellent speech reader, however, and highly motivated. With suitable supportive measures which included weekly conferences between her teachers and the Project Coordinator, she was able to do "A" and "B" work at the freshman level. She was provided with tutors for mathematics and English.

The third academic student was an extremely capable young man and came to the University with a good high school record. He was extremely independent at the beginning of the Project and refused any supportive programs. His hearing loss was profound and amplification was of no help to him.

After mid-semester examinations, however, it became apparent that he would not be able to pass unless some special arrangements were made. His teachers were contacted and preferential seating, conferences with his instructors on a weekly or bi-weekly basis were set up, and tutoring was arranged in history. Before the end of the first semester, he was competing very successfully with the normally hearing students.

College of Education graduate program (1 student). Before the Project started, one student had completed her bachelor's degree in elementary education. She was advised, however, after her student teaching experience was unsuccessful because she was unable to hear well enough to keep discipline in the classroom, that she could not be recommended for a teaching position.

When she entered the Project, it was decided to give her graduate training in special education so she might work with small groups of children where she would not have difficulty in speech reading. Her case illustrated the need for realistic educational and vocational placement.

Atypical programs (2 students). One of the students in the Atypical Units had been placed in restricted secretarial training during her first year on the Project. She had received previous help from the Department of Vocational Rehabilitation, but she felt that none of the training had been suited to her needs.

Her educational placement during the first year did not adhere to one of the major principles of the Project philosophy which was to select training areas based on *abilities* and not on *disabilities*. When the student was eventually placed in the Exploratory Skills Unit, her extraordinary talent for scupture and other art forms was discovered.

In spite of a lack of formal educational background and other handicaps such as being partially seeing, having a pharyngeal flap, dwarfism, and a severe mixed hearing loss with poor discrimination for speech, her creativity in both art and composition became apparent. In addition, she suffered from allergies which made it almost impossible for her to see at times. The greatest handicap was, however, that previous educational placements, including the one during the first year of the Project, had taken into consideration *only her disabilities.* A realistic appraisal of her visual problem excluded her from attempting art which demanded long periods of close work such as medical illustration.

She was placed at an advanced level of educational adjustment with plans to register her in a correspondence course in world affairs in order to broaden her knowledge. Her teachers undertook to familiarize her with the great and beautiful works in art and literature.

A second atypical student was described in detail in the previous section concerning needs for supportive measures. In spite of lack of success before entering the Project, she learned to read at the fourth grade level and was so highly motivated that she was highly disappointed whenever vacation periods interrupted her classes.

Educational adjustment. Only the above-mentioned student needed educational adjustment at the level of the students in Groups A and B. The student in sculpture was given advanced work. Two of the undergraduate liberal arts students had backgrounds which were not as strong as they should have been upon entrance to the college program, but tutoring in various subjects was sufficient.

Orientation: Some of the Difficulties Faced by the Oral Deaf and Hard of Hearing

Identification with the normally hearing world was evidenced by all the members of Group C. One girl who had attended schools for the deaf for several years functioned in both the manually-oriented and the normally hearing groups. She was a shy, somewhat withdrawn girl who had no close relationship to anyone, deaf or normally hearing. She seemed to lack an adequate self-image, much of which seemed related to early rejection. It was impossible to provide sufficient time and funds for travel so sufficient counseling could be carried out with her family.

Several students evidenced emotional problems and an important part of their training consisted of individual and group diagnostic therapy.

Characteristics of the Students in Group C in the Area of Orientation

Marital status. One of the students was married upon admission to the Project. She had two children of college age.

Student attitude toward entering program. All of the students were eager to enter the program.

Family attitude toward the program. The families of all but three wished their children to receive additional training.

Socio-economic status. Some of the students were in the Project despite many things against them such as no money and no family interest.

Importance of self-image. O'Neill (1965) described one of the problems of this Group when he wrote the following:

> If the hearing difficulty is not improved or alleviated, the person will be living in an odd sort of a world--a world not filled with confusion, but a world of partial confusions. In such a world he will not withdraw, as he might if he could hear nothing. He tries to maintain contact. The result is a sort of mystified reaction consisting of worries about coping with the unusual--the unknown speaker or situation. He may well become a second--or third-class listener--uncertain about every oral signal he receives or is about to receive. He may want to escape from communicative situations but be forced to confront them. Such behavior results in the development of an uncertain self-image.

Most of the persons associated with Group C felt that the students who were long associated with the normally hearing world would be the easiest persons to assimilate into the existing programs. Supportive communication measures were relatively simple, but the need for personal adjustment guidance was paramount as it was for the other Project Groups.

Because of the emotional problems and/or multiple physical handicaps of several of the students, some of the Advisors to the Project voiced doubts concerning the probable success. These doubts were not borne out, however, since appropriate programs were finally established for all of the students.

Inter-group rejection. The Club that met the needs of Groups A and B did not meet the needs for most of the members of Group C. At first, the latter did not want to associate with people who liked to sign. They were not familiar with manual communication; they did not wish to identify themselves with the manual deaf. The latter, in turn, tended to resent and reject the oral students.

By the second year of the Project, however, the members of Group A and B had become socially more mature and the members of Group C were better adjusted. The oral deaf had reached greater personal security so that they could accept other persons with problems because they had learned to accept themselves.

For social activities to be adequate for both younger and older students, and for these previously oriented to either a deaf or a normally hearing community, great flexibility was necessary. Those with profound losses discovered that they could learn from those with lesser impairments, and the younger students provided a positive factor in making the older students more flexible and candid.

Vocation: Training and Experience for the Members of Group C.

The students of Group C who were carrying full academic loads were unable to assume any outside responsibilities in the transitional vocational placement program. The majority of the Group C students had families which were able to assist them financially so there was no need evidenced for supplementary income in their cases.

Characteristics of Group C Students in the Area of Vocation

Previous vocational experience. One student had worked in a general office, two in domestic service, one in building service, one as a farm hand, and one in a factory.

One had worked before the onset of his disability, and five had worked afterwards. None had been discharged because of his auditory impairment.

Previous vocational training. One student had been trained as a denture laboratory technician and one as a classroom teacher.

Transitional vocational experience. In order to arrange some type of income and vocational experience for those students who were not in the academic programs and whose families were unable to support them, the local businesses were contacted. The transitional employers were alerted to some of the problems they might face with the woman who was on Welfare. Excellent cooperation from these administrators and their staff personnel permitted the development of not only transitional experiences, but also on-the-job training and prospective job placements.

The student who had been on welfare for a number of years had been unable to benefit from the time spent in regular public school programs. Initially, her speech was unintelligible, she could not read nor write, and she had a profound hearing loss. Although she was placed in cleaning work in a hospital, her supervisor complained that she had to be told what to do every day and that there seemed to be no carry-over. The question of motivation arose.

Even though she was being "paid" for the work, all of her income had to be given back to the agency which was supporting her. A special arrangement was made so she could keep a small part of what she earned. A tremendous change was noticed in her work as soon as some reward was given her for doing a good job.

As a result of her training in the Educational Adjustment Program, she learned to read fourth grade material within a few months' time and found great enjoyment in books and magazines which had never been meaningful to her before. It became evident that she was not severely mentally retarded as had been assumed before she was sent to the Project. Her previous accomplishments had been unimpressive and made the Agency and Project Staff cautious in accepting her. It was decided that, in spite of her marked improvement, she should always live in a somewhat sheltered environment.

A second student worked in a variety store where she made artificial flowers. She had a mixed loss, no formal education, but a superior level of intellectual functioning. Her speech was initially unintelligible, but she gradually improved. She displayed a great sense of responsibility.

One student helped about the house where she was boarding.

Vocational placement. The placement of the students from Group C reflected the philosophy of emphasizing abilities rather than disabilities. One became a professional sculpter, one a special education teacher, one worked in the office of a veterinarian hospital, and one was placed in a greenhouse as a planter. Three others planned to continue their education.

Occupational satisfactoriness. All four students who were placed were rated high for satisfactoriness by their employers.

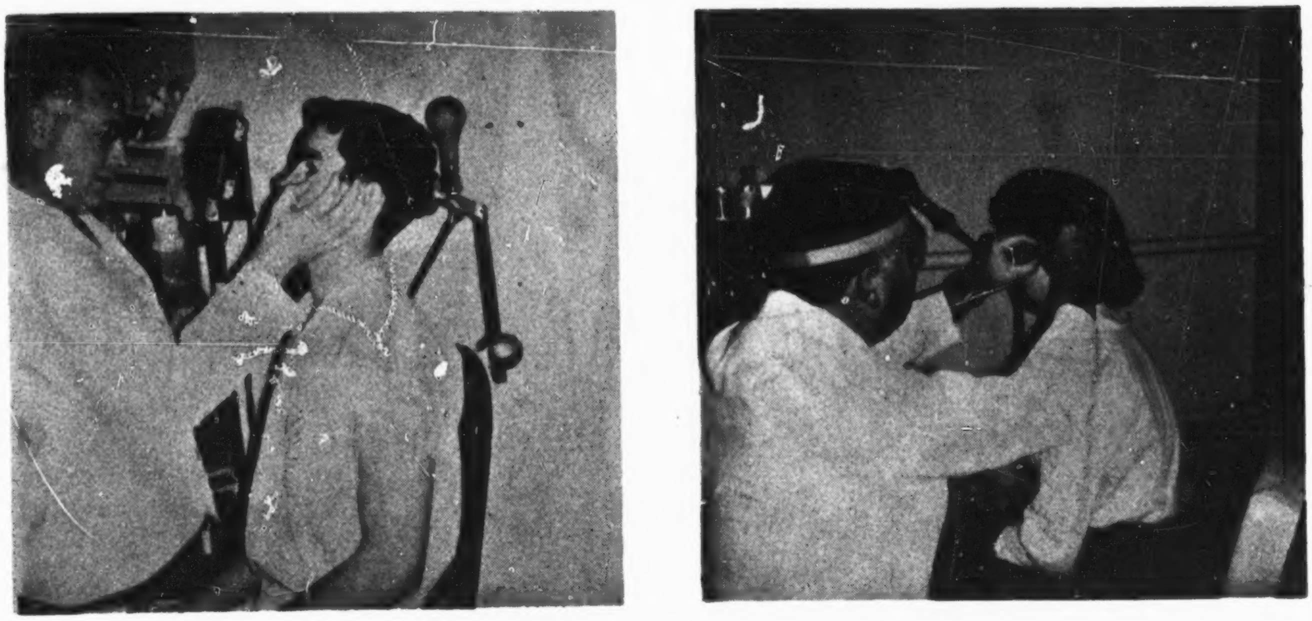
Occupational satisfaction. Three felt that their jobs were better than their deaf friends, and one felt that hers was equally good. Three felt that they had positions comparable to their normally hearing friends. One felt she was better placed.

Salaries were reported as competitive in three-out-of-four instances.

One stated that she needed speech frequently, and three said that they needed it continually.

Retraining for the Adventitiously Deaf in Adulthood

Technical Training



Comprehensive Rehabilitation

Adventitiously Deaf and Hard of Hearing in Adulthood*

> Thousands of people live in a world where they hear faintly if at all. Thousands of others, with only a slight hearing loss today, will hear even less tomorrow. They include the young and the old and the in-between, for hearing loss may come to anyone at any age. The problems it creates are as varied as the people affected, their environments, and the degree of loss they have sustained.

Washington (1958) described in the above quotation the inclusiveness and the intrusiveness of a hearing loss in the lives of vast numbers of individuals.

Treatment of the adventitiously deaf or hard of hearing in adulthood has usually consisted of "once over lightly." The hard of hearing levels of younger and older adults and the progressive loss or sudden loss that destroys aural communication are seldom adequately interpreted in terms of personal-social adjustment and training programs for vocational location and relocation.

Health Aspects of Hearing Conservation reported:

> The age group from 18-65 is found largely in schools, colleges, residential institutions, business and industry, agricultural, the professions, the Armed Services, and in the household population. An approach can be made to early detection in those various groups by emphasizing hearing testing in pre-employment examinations, pre-entrance examinations, induction examinations, and periodic medical re-checks.... Rechecks for preventive hearing are recommended for individuals exposed to hazardous noise, ototoxic drugs, infection or other agents which might produce hearing loss.

In noting some of the social aspects of progressive hearing loss, Clair Kennedy (1961) stated:

> Who can measure the bewilderment of an adolescent with a progressive hearing loss which not only blights his educational possibilities but also forces a retreat from normal teen-age social activities?
>
> ....Or the panic of a young adult suddenly bereft of all auditory contact as a result of drug therapy which was necesarry to halt a serious infection?
>
> ....Or the anguish of a young mother finding herself moving farther and farther from the warm circle of family confidences?
>
> ....Or the deep anxiety of the wage-earner, the father, who fears a job loss or inability to obtain hoped for promotion?

---

*Deaf and hard of hearing students with adventitious losses in adulthood and no related speech and language deficiencies.

> ....or the frustration of a person forced into retirement long before he should be?
>
> ....Or the greatly enhanced loneliness of the elderly person whose loss comes at a time of life when it is most difficult to adjust and when the economic factor is at its lowest ebb?
>
> ....Or the inevitable family tensions generated by the hearing problem of any member?

General Characteristics of Students in Group D

Introduction. The occurrence of a hearing loss in adulthood demanded that comprehensive planning for each individual be undertaken.

One student was no longer able to hold her position as a teacher because progressive diminuation of hearing acuity and discrimination made it impossible to control a group of children. She became profoundly deaf.

Sudden loss in the junior year of high school forced a second student to need help in a reassessment of his vocational goals.

A third student had four dependents. His progressive impairment had not yet produced more than a moderate loss. His previous employment as a farm laborer operating noisy machinery was contra-indicated because of the probability of further damage to the auditory mechanism.

Because of both primary and secondary problems caused by the adventitious loss of hearing, the members of Group D needed assistance from all of the supportive areas as did the members of Group A, B, and C.

Number of students. Group D was composed of three students.

Sources of referrals. One of the students was sent by the Department of Public Assistance, one was referred by a speech and hearing therapist, and the third by a physician.

Time on the Project. One student spent one year, and two students spent two years.

Chronological age. The age range was from nineteen to fifty-five years of age. One student was nineteen, one twenty-nine, and one fifty-five at the time of admission.

Sex. Two students were male, and one was female.

General health aspects. All students were in good health when admitted to the Project.

Vision. Two students had moderate impairment of vision, and one had a slight impairment. All were satisfactorily corrected.

Motor coordination. Motor coordination was normal in all three students.

Other health aspects. One student had a skin problem.

Diseases. One student reported a medical history of mumps, meningitis, and rubella. The other students did not report any diseases.

Operations. No operations were reported for any of the students.

Characteristics of Group D in the Area of Communication*

Reported etiology of hearing loss. Only one student reported a reliable etiology for his hearing loss: meningitis. One of the students joined the Project because of a progressive loss which called for vocational retraining.

Degree of hearing loss. The hearing losses in this Group were essentially sensorineural with averages in the speech frequencies of 80 dB for one student, 55 dB for the second, and 45 dB for the third.

Onset of loss. Onset of the hearing loss occurred in adolescence (17 years of age) in one student, in young adulthood (noted at 29 years of age) in another, and in middle adulthood in the third. The latter two losses were progressive.

Use of amplification. One of the students used amplification before and during the Project. The young man with the sudden loss from meningitis resented having to wear an aid.

Discrimination scores. One student scored 24% and another scored 34% on the phonetically balanced word list. The third student with the progressive loss still had excellent discrimination demonstrated by a nearly perfect score. The student with the sudden loss seemed to have a greater handicap in developing discrimination functions than his audiogram indicated.

Oral communication skills. The oral communication skills of all of the students in Group D were rated as normal.

Speech reading. The usual tests for speech reading were suitable for this Group. Only the one student who had experienced her loss over a number of years, however, was rated as being a satisfactory speech reader. The other two students had never had the need to develop this specific skill and received poor ratings.

Structural adequacy. All members of Group D had satisfactory structural adequacy.

Manual skills. No student was familiar with manual language.

Reading and written language. One student with an inadequate educational background was rated as having only fair reading and composition skills. The other two were rated as good.

*Table 28 provides pre and post-program ratings in communication skills, rate of improvement, and need for additional help.

TABLE 28
GROUP D (N=3): COMMUNICATION SKILLS

Aspect	Pre-program Ratings			Post-program Ratings			Rate of Improvement			Satisfactory		
	Unsat. Poor	N.Impr. Fair	Satis. Good	Unsat. Poor	N.Impr. Fair	Satis. Good	Unsat. Poor	N.Impr. Fair	Satis. Good	Admis-sion	Termi-nation	Added Help
Structural Adequacy	0	0	3	0	0	3	0	0	0	3	3	0
Respiration	0	0	3	0	0	3	0	0	0	3	3	0
Phonation												
Pitch	0	0	3	0	0	3	0	0	0	3	3	0
Intensity	0	0	3	0	0	3	0	0	0	3	3	0
Timbre	0	0	3	0	0	3	0	0	0	3	3	0
Resonation	0	0	3	0	0	3	0	0	0	3	3	0
Articulation	0	0	3	0	0	3	0	0	0	3	3	0
Connected Speech	0	0	3	0	0	3	0	0	0	3	3	0
Written Language	0	1	2	0	1	2	0	0	1	2	2	2
Auditory Discrimination (Aided)	2	0	1	2	0	1	2	0	0	1	1	2
Speech Reading	2	0	1	0	2	1	0	2	0	1	1	2
Reading	0	1	2	0	1	2	0	2	1	2	2	1
Manual Skills	No skills			No skills			No skills					

Ratings: unsatisfactory = poor, needs improvement = fair, satisfactory = good

The above ratings were made in comparison with communication skills of normally hearing persons. Rate of improvement was not necessarily in direct relationship to ratings of pre and post-program change.

Comprehensive Supportive Program in Communication for Group D Students

Auditory avenue. Every student was given an individual auditory assessment to determine the degree to which each would benefit from amplification. Re-assessments were made three times a year on the student with the progressive loss, monthly on the student with the newly acquired loss, and twice a year on the graduate student whose loss had become severe-to-profound several years before entering the program.

The student with the progressive loss who had not yet displayed any significant loss in auditory discrimination was given daily lessons in speech reading and auditory orientation. After six months, he was placed on a three-times-a-week therapy basis. Sessions varied from one hour to one-half hour in length.

Some difficulty was experienced in respect to hearing aids. The student with the newly acquired loss from meningitis was resentful of his loss and preferred not to use amplification. His mother felt that she was in a better position to prescribe the type of amplification best suited to her son's use than the audiologist. She insisted that he wear his uncle's aid since she felt that the latter was able to hear better with it than her son was able to hear with the one selected at the clinic evaluation.

The aid of a second student was checked three times during the year. The student with the progressive loss did not yet feel the need for amplification in his educational and vocational placement.

The oldest member in the Group was wearing a hearing aid at time of admission to the program, but her auditory discrimination even with the aid was very poor (24%). She resisted any help that had to do with her hearing loss.

Results and Evaluation of Communication Supportive Program for Group D

All aspects of communication skills rated good in the pre-program ratings remained so. Two students went from poor-to-fair in speech reading. Auditory discrimination remained poor for two students. The reading and writing skills of one student remained only fair.

It could not be determined if speech skills would have deteriorated in the younger and older students if they had not had therapy. The results of the training of the man with a progressive loss, other than the improvement in speech reading skills, was not possible to evaluate.

The Staff felt that there was an awareness developed in all of the students concerning the importance and availability of help in the area of communication.

Rate of improvement. The reading and writing of one student showed a good rate of improvement, although it was felt that he needed to further improve his skills.

Two were rated as making fair improvement in speech reading and reading. Two were rated as showing poor improvement in auditory discrimination.

Satisfactory at termination. The ratings of satisfactory were the same at termination as at the initiation of the program. Additional help was recommended for two students in speech reading, auditory discrimination, and written language, and for one in reading.

Education: Some of the Difficulties Faced by the Adventitious Deaf and Hard of Hearing in Adulthood

Students in Group D had difficulty in appraising realistically the need for training and retraining which would emphasize their abilities but recognize their disabilities. They found it difficult to comprehend the importance of retraining opportunities which took into account the danger of further damage and which provided preparation in an occupation where normal hearing was not paramount for success.

Characteristics of the Student in Group D in the Area of Education

Pre-project educational backgrounds. The students in Group D had attended standard educational programs in the public schools all of their educational years. The range was from eight-to-sixteen years, with a mean of twelve years for the three students. One student had completed a bachelor's degree, one student was counted as an affiliate while he finished high school before entering as a full-time project student, and the third had terminated his studies at the end of junior high school.

Intellectual functioning. The range of the intellectual functioning was 99 to 120 with a median of 120, and a mean of 113. One of the students refused to submit to the battery of tests, but an estimate of at least 120 was made as a result of receiving all "A's" on graduate work taken while on the Project.

Educational achievement levels. The range of the educational achievement levels as shown by the Stanford Achievement scores was from fifth to twelfth grade with a median of eighth grade and a mean of 8.3.

Comprehensive Supportive Program in Education for Group D Students

The students entering the College of Education and the School of Trade and Technical Education were required to take the battery of tests given all entering students.

One student entered the Graduate School and took courses in the area of speech and hearing disorders. She was an excellent speech reader, but she had been unable to continue working with large groups of children because of the deterioration of her hearing. The plan was to give her a background in special education so she might work with small numbers of students.

Taped-typed notes of the lectures and some orientation by one of the other students majoring in the area supplemented her own note taking. She made all "A's" and "A" minuses in her work. Whenever she received the latter grade, she became upset because she demanded a perfect performance of herself in spite of profound deafness.

A second student was admitted to a course of Instrumentation as soon as he completed his high school training. A sudden severe hearing loss which was brought on by encephalitis during his junior year of high school brought him to the attention of the Project Staff. Through the coordinated efforts of the Otologist, the Internist, the High School Counselor and Teachers, the Vocational Rehabilitation Counselor, and his high school friends who tutored him through the senior year, he was able to graduate and enter a technical training course at the University.

Before becoming a full-time student, he received all of the audiological and counseling services available to the project affiliates. During his time on the Project, the only educational assistance he needed in his class in Instrumentation was assistance from the teacher and other classmates.

The third student's educational background, vocational experience as a farm hand, family obligations, and deficient educational background indicated that a trade would be the most practical approach to his problems. He was placed in Upholstery.

Although his hearing loss was progressive, it had not yet reached the point of serious interference in his educational program nor his personal-social adjustment to normally hearing persons.

Educational adjustment. Although the student in Upholstery would have profited from the Educational Adjustment Program, he was not interested in attending. The other two students needed no help in the basic subjects.

Orientation: Some of the Difficulties Faced by the Members of Group D

Washington (1958) has said:

> Men and women who have been hard of hearing since early childhood often speak with great feeling about the deprivations and misunderstanding of their school days. Because of their own unhappy experiences, they are keenly aware of the need for preventive and rehabilitative services in schools and clinics.

D. A. Ramsdell (1960) noted that:

> Anyone who has closely observed an adult soon after he has lost his hearing has noted that he becomes discouraged and struggles with feelings of depression....Nor is the depression prevented by prompt instruction in speechreading... A study of the reactions of soldiers....has shown that the loss of communication is not the deaf man's only or most serious loss.

Characteristics of the Students in Group D in the Area of Orientation

Marital status. Two members were married.

Recipient of previous financial help. Pre-project help had been accorded one student by the Department of Public Assistance.

Student attitude toward entering the program. The students accepted the program as something which might serve in some way to help alleviate their feelings of desperation. The significiance of what their losses meant to the vocational training and retraining aspects of the program were not apparent to them until they had been on the program long enough to discover that they needed supportive measures to succeed.

Family attitude toward the program. The husband of one student resented her association with the program. The mother of one student did not comprehend the need for specialized staff and assistance. She wanted to keep her son completely dependent upon her. The wife of the third student was seldom seen by anyone associated with the Project. Neither she nor her husband participated in any activities at the Speech and Hearing Center beyond his classes in speech reading and auditory training.

Members of Group D rejected other hearing impaired persons and tenatiously held on to their contacts with the normally hearing population. The families of two demonstrated rejection and a demand for dependency from the member of the family with the hearing loss.

Intergroup relationships. The members of Group D did not find the Club activities of the students from Groups A, B, and C of interest. The older, married members of Group D had nothing in common with the younger man with a sudden adventitious loss.

Two of the Group D students were married and were engrossed with their responsibilities at home. One had obligations to her husband's organizations. The third student rejected his sudden loss and any association with the other limited hearing persons. Before the end of the Project, however, the latter student had begun to accept his loss and the association with the members of other types of limited hearing persons.

During the first year, adequate counseling was not available to the students and their families. As a result, the great dejection and consternation which was evidenced by one of the Group D students and her husband finally culminated with her withdrawal from the program. Later, although she did not return for further graduate work during the Project, she began to realize the importance of the opportunity for retraining which had been given her. It was hoped that she would complete her studies as a result of one year's supportive measures.

Socio-economic status. One of the goals of the orientation aspect was to help those who were recipients of public welfare to become self-sustaining. One of the students was supported by the Department of Public Assistance during the time he was being retrained. At first, it appeared that he might wish to remain permanently on their roles. As his need for greater income became more desperate, it was feared that he might not complete his training and would return to farm labor. Fortunately, this did not occur. He completed his training and found employment as an upholsterer.

If the Project had had numbers large enough to offer social activities for the husbands and wives of the students in Group D, much would have been added to the orientation and adjustment of these students. A second group of younger students with adventitious losses might have been organized as well.

Hayes Newby describes further difficulties experienced by the hard of hearing:

> The hard-of-hearing adult is reluctant to admit that he has a sensory handicap....He will attempt to bluff and give a response which he hopes is appropriate, rather than admit to a person with whom he is conversing that he did not understand a statement or question....for example, it is not uncommon for older school teachers to develop sufficient hearing loss to cause them difficulty and embarrassment on many occasions.

The behavior patterns described above were similar to those evidenced by the members of Group D.

The inability to accept a defective body-image and a new self-concept in relationship to vocational training and placement posed serious problems for the two students with the severe and profound losses.

Vocation: Training and Experience for the Members of Group D

The members of Group D illustrated some of the educational and vocational problems faced by adventitiously limited hearing persons who were at different stages of educational preparation and who possessed differing degrees of loss.

Since the members of the Group had already functioned within the normally hearing community, and since all three had help jobs before being admitted to the Project, many of the vocational aspects designed for the other three groups were not needed.

Previous vocational experience. Three of the students had worked before the onset of their hearing disability. Two had worked afterwards. One had been discharged as a result of her loss. Only one had had any vocational training and had worked as a classroom teacher. The other two had worked as farmhands.

Vocational placement. Only one student was placed as a result of his training. He entered an upholstery factory. One student continued as a housewife, and the other planned to continue his schooling. No report of job satisfactoriness nor satisfaction were available. The one student who accepted a position as upholsterer did so in a city far from Idaho, and there was no contact with his employer.

RESULTS

Ratings for Groups and Total Project Population

Full-time project students were evaluated for various aspects pertinent to each of four areas; communication, education, orientation, and vocation. Measurements were made in respect to (1) pre and post-program levels of functioning, (2) rate of improvement, (3) satisfactory functioning at admission and termination, and (4) need for additional help at termination of the program. Ratings were based on what was considered "good" for normally hearing persons. This score was interpreted to mean satisfactory for communicational, educational, personal-social and vocational functioning. See Table 29 for comparative pre and post-program ratings.

Results for the Total Population in the Area of Communication: Expressive Skills

Interpretation of scores. Poor was considered as unsatisfactory for conversational or educational purposes; fair referred to students who barely achieved satisfactory usage; and good was used for effective expression of knowledge and/or skills. The latter did not imply that the student did not have need for further improvement.

Structural adequacy. All students revealed structural adequacy of the vocal mechanism for the development of functional communication skills.

Respiration. The pre-program ratings of five poor, nine fair, and fourteen good became eight fair and twenty good at the end of the Project.

Phonation. The phonatory basis of communication was divided into areas of pitch, intensity, and timbre.

Evaluations for pitch revealed that fifteen had poor scores, five fair, and eight good on the pre-program evaluation; only three were poor, with eight fair and seventeen good on the post-program evaluations.

Intensity ratings included fourteen poor, two fair, and twelve good as compared with one poor, seven fair, and twenty good at the termination of the program.

Diagnostic impressions of timbre noted fifteen students with poor, five with fair, and eight with good quality while post-program ratings included four poor, six fair and eighteen good.

Resonation. Resonation problems were described as twelve having poor, nine having fair, and seven students having good scores. Post-program scores showed one as poor, twelve fair, and fifteen good ratings.

Articulation. Results of the articulation testing showed eleven students with poor ratings, six with fair, and eleven with good. Final ratings gave one poor, nine fair, and eighteen good ratings to the students.

TABLE 29

COMMUNICATION SKILLS: PRE AND POST-PROGRAM RATINGS
TOTAL PROJECT STUDENTS (N = 28)

Aspect	Pre-program Ratings			Post-program Ratings			Rate of Improvement			Satisfactory		
Expressive and Receptive Communic. Skills	Unsat. Poor	N. Impr. Fair	Satis. Good	Unsat. Poor	N. Impr. Fair	Satis. Good	Unsat. Poor	N. Impr. Fair	Satis. Good	Admission	Termination	Needed Add. Help
Structural Adequacy	0	0	28	0	0	28	0	0	0	28	28	0
Respiration	5	9	14	0	8	20	0	8	6	14	20	12
Phonation												
Pitch	15	5	8	3	8	17	3	9	8	8	17	16
Intensity	14	2	12	1	7	20	1	8	7	12	20	10
Timbre	15	5	8	4	6	18	4	7	10	8	18	16
Resonation	12	9	7	1	12	15	1	10	10	7	15	21
Articulation	11	6	11	1	9	18	1	2	14	11	18	14
Connected Speech	8	5	15	4	5	19	5	3	5	15	19	10
Written Language	4 (1 illiterate)	13	10	2	16	10	1	12	7	10	10	21
Auditory Discrimination (Aided)	23	3 (1 aided)	2	13	9 (1 aided)	6	13	6	4	2	6	27
Speech Reading	3	14	11	1	12	15	3	14	0	11	15	23
Reading	4 (1 illiterate)	10	13	2	13	13	1	10	6	13	13	21
Manual Skills	1 (9 had no skills)	0	18	0	1	18	0	1	0	18 (9 had no skills)	18	1

Ratings: unsatisfactory = poor, needs improvement = fair, satisfactory = good

The above ratings were made in comparison with communication skills of normally hearing persons. Rate of improvement was not necessarily in direct relationship to ratings of pre and post-program change. Although skills have been rated as satisfactory, the students may also have been rated as needing additional help.

Connected speech. Length of sentence was interpreted as the following: eight were scored as poor, five as fair, and fifteen as good. Post-program ratings were: four poor, five fair, and nineteen good.

Written language. One student was illiterate, four were poor, thirteen were fair, and ten were good when they begain their studies. At the conclusion of the program, two were poor, sixteen were fair, and ten were good.

Area of Communication: Receptive Skills

Auditory discrimination. Pre-program testing showed twenty-four students with aided discrimination scores which were rated in the following manner: twenty-three as poor, three as fair, and two as good. Post-program scores were thirteen poor, nine fair, and six good. One student did not use amplification: his score appears under the pre and post-program ratings of good. (See Table 29.)

Speech reading. Speech reading was rated as poor for three students, fair for fourteen, and good for eleven. Post-programs evaluations showed one poor, twelve fair, and fifteen good.

Reading. One student was a non-reader. Four were rated as poor, ten as fair and thirteen as good at the inception of the Project. At the termination, two were considered poor, thirteen fair, and thirteen good.

Manual Skills

Those students using manual skills were equally skilled in receiving and sending finger spelling and signs with one exception. The latter developed a fair rating by the end of the Project. Nine students did not develop any manual skills.

Ratings of Improvement in Communication Skills

One student made poor improvement in intensity, resonation, articulation, written language, and reading. Three showed poor improvement in pitch and speech reading. Four made poor improvement in timbre, five in connected speech, and thirteen in auditory discrimination.

One student showed fair improvement in manual skills, two in articulation, six in timbre and auditory discrimination, eight in intensity and respiration, nine in pitch, ten in resonation and reading, twelve in written language, and fourteen in speech reading.

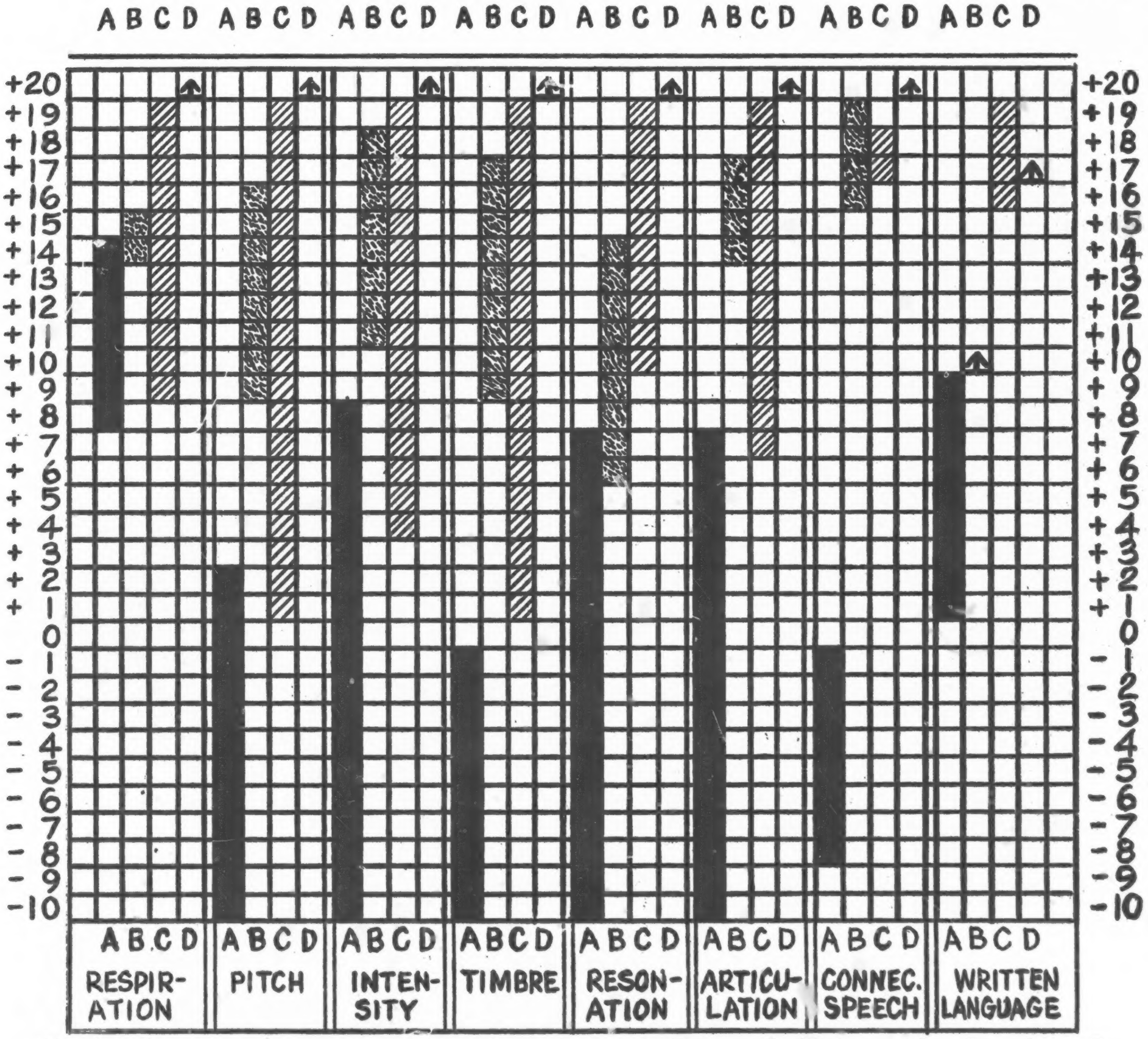
Four showed good improvement in auditory discrimination, five in connected speech, six in respiration and reading, seven in intensity and written language, eight in pitch, ten in timbre and resonation, and fourteen in articulation.

Functional Change by Groups in Expressive Communication Skills

Ratings were converted into group means for the purpose of comparison. Table 30 gives the pre and post-program levels of functioning when the ratings were weighted according to: no function = -2, poor = -1, fair = +1, good = +2.

TABLE 30

FUNCTIONAL CHANGE IN EXPRESSIVE COMMUNICATION SKILLS



Weighted ratings based on: No function = -2, Poor = -1, Fair = +1, Good = +2

Interpretation of functional change in expressive communication skills. In consideration of the movement shown in Table 30 for Functional Change in Expressive Communication Skills, it can be seen that Group A began lower and finished lower than any of the other Groups. Their post-program scores illustrated that their communication problems were gravest in the following order: first--timbre and connected speech, second--pitch, third--resonation and articulation, fourth--written language, and fifth--respiration.

Group B was less satisfactory than Groups C and D, in spite of the fact they had better hearing than most of the students in either group. The post-program scores were most depressed in the following manner: first--written language, second--resonation with a close score in respiration, third--pitch, timbre, and articulation with close scores, and fourth--intensity and connected speech with similar scores.

Except in written language and connected speech, Group C students scored at the top level at the end of the program. These scores reflected the one student who was nearly illiterate at the beginning of the program and the two students who were initially unintelligible.

Group D students were at the top level both pre and post-program with the exception of written language which was depressed by the one student who had only gone as far as junior high school and refused any additional training in the Educational Adjustment Program.

Table 32 shows that Group A had a movement of 42%, Group C of 40%, Group B of 18% and Group D no improvement in expressive communication skills. The last Group had satisfactory skills at the beginning of the Project.

Interpretation of functional change in receptive communication skills. Auditory discrimination was extremely low for Group A in comparison with the other groups. The two mixed losses and one hard of hearing student in Group C distorted the picture. Their scores obscured the fact that the other four students were as deaf as the members of Group A.

Group B was spectacular in the improvement made in auditory reception as a result of amplification and a desire to function with the normally hearing population. The non-deaf students in Group C also showed good progress in this area. Group D had two students with extremely poor or no discrimination for speech and one student with normal discrimination.

Group A students improved in speech reading when they began to emphasize aural-oral communication rather than manual language. Two of the students in Group D had never needed speech reading. They showed some improvement as a result of their project training. Members of Group C were excellent speech readers; Group B students remained moderately good.

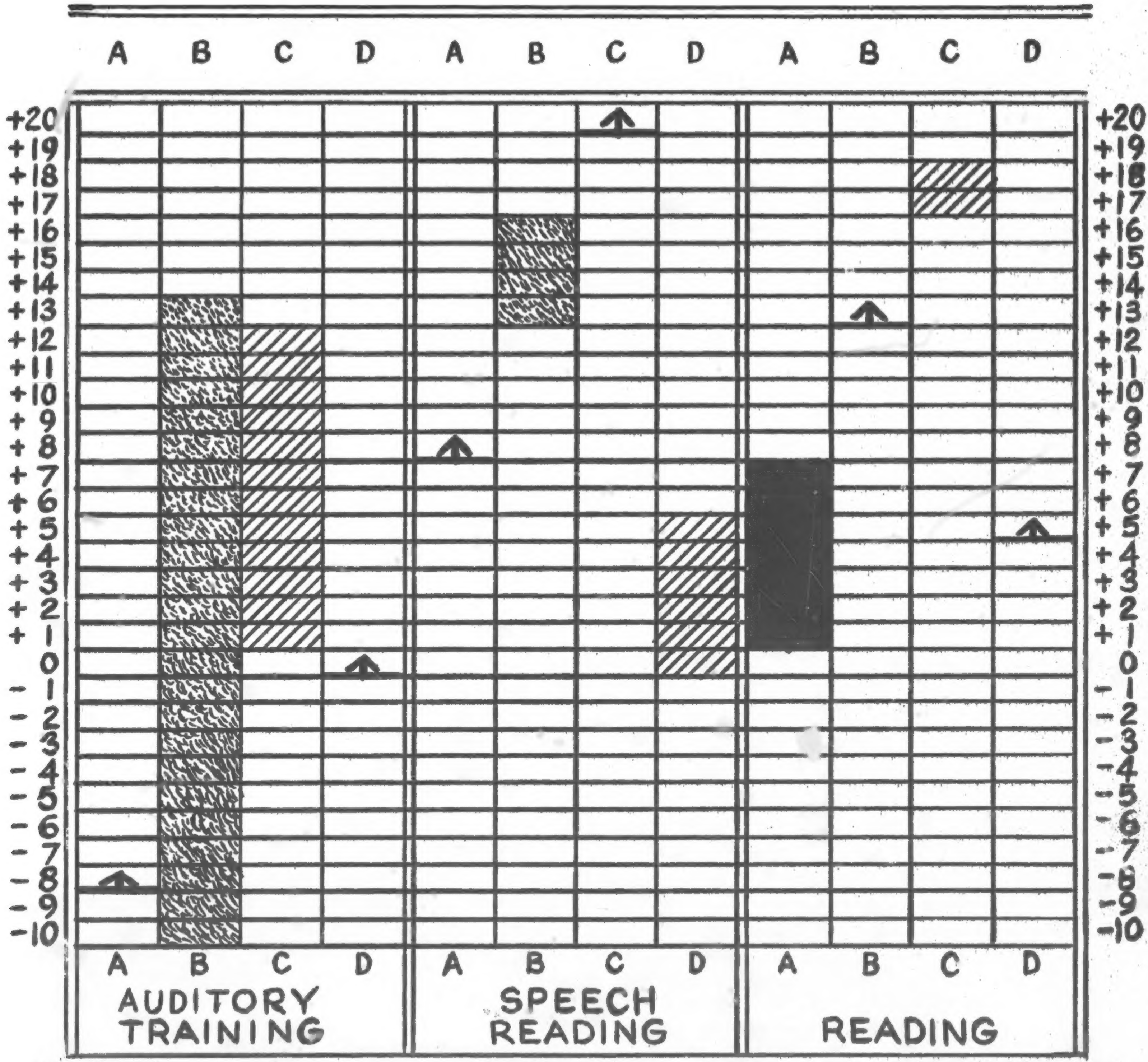
Group A students were poor readers but showed some improvement as a result of the Educational Adjustment Program. The one student in Group C who was poor in reading made great strides which are reflected in the functional change in her group. Groups B and D remained much the same in basic reading skills.

Functional Change by Groups in Receptive Communication Skills

Table 31 gives the functional change in receptive communication skills.

TABLE 31

FUNCTIONAL CHANGE IN RECEPTIVE COMMUNICATION SKILLS



Weighted ratings based on: No function=-2, Poor=-1, Fair=+1, Good=+2

Table 32 shows that Group B had a movement of 55%, Groups A and C had 16%, and Group D had 13% functional change in pre and post-program ratings of receptive communication skills.

Percentage of improvement for each group. Of the total improvement shown by the movement from the pre-program position on the tables of pre and post-program ratings, each group represented the following percentage of functional change.

TABLE 32

PERCENTAGE OF MOVEMENT IN COMMUNICATION SKILLS

Group	Expressive Skills	Receptive Skills	Total
Group A	42%	16%	36%
Group B	18%	55%	29%
Group C	40%	16%	33%
Group D	0%	13%	2%

Groups A and C showed the greatest improvement in Expressive Skills and Group B in Receptive Skills. The manually oriented deaf of Group A showed the greatest overall improvement with the oral deaf and hard of hearing second. The partially hearing of Group B was not far below. Group D had no problem with expressive skills but had difficulty with both speech reading and auditory discrimination.

Pre and Post-program Satisfactoriness of Communication Skills

The changes in the numbers and percentages of students who rated as functioning satisfactorily in the various aspects of communication are shown in Table 33.

Interpretation of satisfactoriness of post-program oral communication skills. Satisfactoriness was defined as meaning that students receiving such a rating were able to function satisfactorily in a normally hearing milieu. Table 33 does not reflect the movement toward satisfactoriness; it reflects only the number and percentages of students who were rated satisfactory pre and post-program. This Table does not indicate which students with a satisfactory rating were recommended for additional help in spite of a satisfactory rating.

Table 33 indicates that in Expressive Skills, an average of seven more students exhibited satisfactory communication on the post-program rating than had on the pre-program evaluation. This was an increase of 22% in the number of students rating as satisfactory.

TABLE 33

SATISFACTORINESS OF COMMUNICATION SKILLS: (N = 28)

Aspect of Communication Skills	Number of Students				Post-program Change	
	Pre-Program No.	%	Post-Program No.	%	Difference No.	Scores %
			Expressive Skills			
Respiration	14	50%	20	72%	6	22%
Pitch	8	29%	17	60%	9	31%
Intensity	12	43%	20	72%	8	29%
Timbre	8	29%	10	30%	10	1%
Resonation	7	25%	15	53%	8	29%
Articulation	11	40%	18	65%	7	25%
Connected Speech	15	53%	19	67%	4	14%
Mean*	10	38%	17	60%	7	22%
			Receptive Skills			
Auditory Discrimination	2	8%	6	21%	4	13%
Speech Reading	11	40%	15	53%	4	13%
Mean*	6	24%	10	37%	4	13%
			Total Communication Skills			
Expressive Skills	10	38%	17	60%	7	22%
Receptive Skills	6	24%	10	37%	4	13%
Mean*	8	31%	13	48%	5	17%

*Given in round numbers

In Receptive Skills, an average of four more students were rated satisfactory at the termination of the Project than had been at admission. This is a mean increase of 13%.

Total communication skills satisfactoriness resulted in an average of five additional students at termination which represented a 17% mean increase over the evaluation at admission.

It has already been pointed out that the oral deaf and hard of hearing students of Group C and the adventitiously deaf and hard of hearing in adulthood of Group D did not learn manual skills.

Reading and writing were not re-evaluated for achievement levels at the end of the program. Those students who learned the vocabulary, syntax, and concepts involved in their educational placements were considered as having achieved the goals of the Educational Adjustment Program. Insufficient time was allowed the supportive measures for any dramatic improvement of general achievement levels to be noted.

Additional help needed. An average taken of the students needing additional help in expressive communication skills indicated fourteen, or 50% of the students, were recommended for additional help.

In receptive skills, twenty-five students, or 89% were recommended for additional help at the end of the Project. Auditory discrimination did not appear likely to improve in many of the students, but speech reading probably would show additional improvement if the individuals continued to study that particular skill.

Twenty-one students were rated as needing additional study in reading and composition. This represented 75% of the project population.

Evaluation of Supportive Communication Program and Modifications of Environmental Media

Supportive measures for the improvement of individual communication skills. Table 34 gives the number of students in each Project Group which participated in the various supportive measures.

TABLE 34

NUMBER OF PARTICIPANTS IN VARIOUS SUPPORTIVE COMMUNICATION PROGRAMS

Training Aspects	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Auditory Training	6	10	6	2	24
Speech Reading	8	10	5	2	25
Language Therapy	8	10	2	0	20
Preparatory Public Speaking	0	8	1	0	9
Freshman Speech Course	0	1	5	0	6

The majority of the project students needed auditory training, speech reading, and language therapy. The reasons for supportive measures in these skills varied from depressed achievement levels and poor educational backgrounds to dependency on manual skills and progressive hearing losses which had previously not demanded adjunctive communicative support.

Modifications of the communication media in the educational environment. The modifications of the communication media which were used to assist the limited hearing students to compete successfully with their normally hearing peers are shown in Table 35.

TABLE 35

MODIFICATIONS OF THE COMMUNICATION MEDIA

Modifications of the Communication Media	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Special Group within Regular Class*	1	1	1	0	3
Individual Attention during Class*	2	1	1	1	5
Taped-typed Instructors' Lecture Notes	0	1	0	1	2
Special Notetakers	0	0	1	0	1
Copy Instructors' Notes	0	0	1	0	1
Copy Friends' Notes	1	1	1	1	4
Tutored by Friend	1	1	1	0	3
Tutored by Instructor	1	1	1	0	3
Preferential Seating	1	10	7	3	21
Manual Interpretation	3	1	0	0	4
Orientation of Faculty	8	10	7	3	28

*These methods were abandoned after the first year of the Project.

Interpretation of modification techniques. The use of special grouping within a regular class or more than passing attention from the instructor were not satisfactory modifications insofar as the normally hearing students in the class were concerned. These measures tended to slow down the progress of the regular students, and, for the most part, did not provide sufficient help for the severely limited hearing students. All of the other supportive approaches were highly satisfactory.

Improvement of communication skills for normally hearing associates. Orientation to the need for speech reading and preferential placement was sufficient for satisfactory communication with the oral project students. Understanding of the difficulties faced by the manually-oriented students allowed for supplementary measures to be taken. Faculty members were alerted to the necessity of additional help in achieving good comprehension of course material and the need for weekly conferences with the Coordinator of the Project to assure an understanding of the assignments of levels of expectation on the part of the instructor.

A number of the campus normally hearing students and faculty were familiar with manual skills. A great many of the professional trainees and all of the project personnel became familiar with manual language. Whenever oral skills were insufficient, writing was used as a means of communication.

Results for the Total Population in the Area of Education

Educational placements were affected by achievement and language levels. Table 36 indicates the various training programs which were attended by the full-time students. Two enrolled in graduate programs, four in undergraduate liberal arts; two entered technical training--1 in regular and 1 in restricted courses; four entered secretarial training--1 in regular and 3 in restricted; nine matriculated in regular trade courses; seven attended atypical units; and three received on-the-job training.

Satisfactory placements. Twenty-four out of the twenty-eight students were satisfactorily placed in educational programs of their choice. Fourteen per cent of the students were not satisfactorily placed when they were allowed to choose their training areas. As the Project progressed, the students became more aware of the breadth of choices which were available to them in a program at a university.

Nineteen students completed their training and four continued in school.

Educational adjustment. All of the students in Groups A and B which consisted of the manually-oriented deaf and the partially hearing needed educational adjustment. One student in the group of oral deaf and hard of hearing and one in the adventitiously deaf and hard of hearing in adulthood group needed help in the basic subjects. This represented 72% of all the students in the Project.

Interpretation of findings regarding educational placements. Prelingually deaf persons with serious speech and language deficiencies should not be expected to function in academic programs. This restriction is obvious to persons who have been associated with individuals with severely limited hearing, but it has not always been apparent to the non-professionals, the families, or even to some of the professionals from disciplines other than education of the deaf. What the opportunities for the severely impaired are in existing facilities for the normally hearing is just beginning to be understood through the initiation of programs to study the deaf integrated with the normally hearing.

Language development. The one variable which proved to be of the greatest importance in determining educational placement was the level of language development. Oral-aural communication skills, per se, were not particularly detrimental to the integration of the prelingually deaf with the normally hearing students. Tutors, notetakers, interpreters, tape recordings, the "buddy system" and special grouping within the classroom were all effective ways of adapting the communication medica for students whose language development was satisfactory.

Technical courses. The normally hearing students' technical programs were adversely affected, however, by the special grouping technique because too much of the teachers' time was consumed by those students who needed additional attention and repeated explanations. In the process of trying to equate the progress of both the manually-oriented deaf and the normally hearing, the latter were slowed notably and the amount of material usually covered in a year's time was reduced.

The preparation of both the normally hearing and the prelingually deaf, manually-oriented students registered in technical courses was best served by placing the deaf students in the atypical programs at the Speech and Hearing Center where their programs were flexible enough to allow the students to emphasize their abilities and de-emphasize their disabilities.

Trade courses. The prelingually deaf, manually-oriented deaf students not only did well in the trade courses, but several members of the group distinguished themselves. Oral-aural communication was no problem since most of the teaching involved visual cues. It appeared, however, that not over fifteen per cent of the class should consist of deaf students if the normally hearing students were to receive adequate attention from the instructors.

Personal-Social Adjustment Patterns for the Total Project Population

Basis for judging results of the orientation program. The personal-social orientation ratings were subjectively determined by the psychiatric social worker's observations of students over the time they were on the Project. He had at his disposal a case file for each student which included: pre-admission counseling notes, initial student interview, initial student/family interview, complete social history, quarterly student interview notes, quarterly family interview notes, social club observation notes, and comments from the Project Staff, faculty members, and employers.

The characteristics rated were: passivity-activity, dependency-independency, simple-complex behavior, shallow-deeper interest, short-time--long-time perspectives, subordination-equality, lack of self awareness-control over self. Each was rated numerically according to his interpersonal relationships to hearing peers, deaf peers, father, mother, siblings, teachers, project personnel, and employers.

The descriptive ratings for the pre-program adjustment of the various groups of full-time project students underwent decisive changes during the time the students were on the Project. Large areas of growth were noted in students in their desire to adapt to the hearing community. Programs were geared toward helping the student learn to adapt by developing more self confidence and a better attitude about themselves.

Improvement was noted in nearly all student situations. Professional trainees and other normally hearing associates seemed to benefit from working with their counter parts--the limited hearing students who were unable to benefit from amplification. Experiential learning was imperative for the professional trainees to really comprehend the problems imposed upon the various limited hearing populations.

TABLE 36

EDUCATIONAL PLACEMENTS

Aspects of Training Program	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Educational Adjustment					
Percentage of Students Needing Edu. Aju. Prog.	100%	100%	13%	33%	72%
Training Program Attended (Some students attended more than one area)					
Training Program Attended					
Liberal Arts					
Undergraduate	0	1	3	0	4
Education					
Graduate	0	0	1	1	2
Technical Training					
Regular	0	0	0	1	1
Restricted	0	1	0	0	1
Secretarial Training					
Regular	0	1	0	0	1
Restricted	1	1	1	0	3
Trade Programs					
Regular	4	4	0	1	9
Atypical Units					
Office Skills	2	2	1	0	5
Sculpture	0	0	1	0	1
Crafts	1	0	0	0	1
On-the-job Training	1	1	1	0	3
First Educational Placement Upon Entering Project					
Student Choice Satisfactory	7	9	5	3	24

Greater personal-social maturity was noted in the emancipation from family dependence in most instances, attainment of good working relationships with the Project Staff, faculty members and employers. There was better comprehension of long-term goals, lack of need for the immediacy of reward that was first noted in the transitional vocational placements, and the development of an awareness of the opportunities, choice, and availability of resources within the normally hearing community. An appreciation of the importance of adequate preparation and the rewards of heterogeneous associations among the deaf, hard of hearing and normally hearing seemed to instill higher motivation and greater self-respect.

As the self-concepts of the limited hearing populations improved, the students accepted the challenges of the normally hearing environment. Their public image improved and excellent acceptance by all of their associates was noted. Many of the employers took satisfaction in the achievements of their limited hearing employees. Success, however, was dependent upon the emphasis upon abilities rather than the disabilities. Satisfactory educational and vocational placements were dependent upon individualized planning.

Continued processes of maturation and the development of good interrelationships between the limited hearing and their normally hearing associates appeared to be dependent upon extensive follow-up programs with reinforcement of many of the same areas included in the supportive programs which were an integral part of the Project.

Results of the orientation program for Group A. Some of the students from Group A composed of manually-oriented students entered the Project feeling dejected, worthless, inferior and inadequate. Those who had looked for work had been unable to find anything but part-time farm work. A number had spent the major part of their lives on welfare. Some of these students did not expect much from life because they had never had much. The need for a program geared toward helping them succeed in something was paramount. The immediacy of the building of a new self-image was evident.

One of the problems faced by the manually-oriented students was to socially adapt themselves to a job because of the marked absence of previous experience with the normally hearing community. This seemed to give rise to many feelings of shyness, lack of self-confidence, and isolation. A lack of common interest between the normally hearing and deaf workers was often a barrier. Educational placement, rooming and boarding, and transitional vocational placements among the normally hearing helped to overcome these problems.

The manually oriented students improved their communication skills and participated in the activities provided at the University. Several of them dated normally hearing young men and women very successfully. They were well accepted in the Student Union and in the young peoples' church groups.

One girl married a hard of hearing man.

Results of the Orientation Program for Group B. The partially hearing students of Group B showed by far the most movement of the entire project population. Because they were the largest group, they tended to represent a cross-sectional study of one of the types of limited hearing students which might best utilize post-secondary-level training.

Even though the hearing losses of the partially hearing could be partially overcome through the use of hearing aids and the employment of special tutors, many of these students still felt different from other people. They were very sensitive to others' reactions to their slowness to grasp word meanings. It seemed that often this presented a conflict for the partially hearing student in his decision of whether to identify more with the deaf or with the normally hearing associates.

As the milieu tended to reward and to reject certain patterns of behavior, however, the partially hearing students assumed their own "within the skin" orientation. The faculty and peer group no longer considered them problem individuals but only individuals with a mild communication problem. The impaired sensory filtering system with its resultant inner language and expressive communication patterns which had previously tended to negatively affect intra and interpersonal relationships became modified and assumed less importance.

Six of the ten partially hearing students showed leadership ability and demonstrated it throughout the Project. As the program progressed, these students made bids to firmly implant themselves on the hearing side of the ledger and eventually indicated that they desired to remain there. One girl dated a normally hearing boy exclusively, one boy pledged a college fraternity, and all of the students before the termination of the Project, preferred to eliminate manual language even when they were communicating among themselves.

Some of the partially hearing students became impatient with the members of the manually oriented deaf group who did not make, they thought, sufficient effort to acquire oral skills. Many of the partially hearing, however, were used as interpreters between the normally hearing and the manual deaf. The partially hearing students seemed to adjust well to this activity since it gave them a feeling of accomplishment and an opportunity to contribute to the success of the Project and its students.

The partially hearing students needed to experience some successes so that they might dare to do something they had previously felt was impossible. They needed to compensate for their handicap by being more aggressive than passive and to become more independent than dependent. Some of them emancipated from their parents to the extent of setting up their own housekeeping.

The students, by and large, who finished the Project as the most improved, started out as better adjusted students and became leaders of the Group. The one student who was dismissed from the Project had acted as a negative influence on the manually oriented and partially hearing students. A letter which was later received by the Director of the Project said:

> I surely do hope that the program for the deaf has been a success. I can find no applicable reasons for being concerned about the program except that I hate to see such a good program such as this one which has many advantages and opportunities for the deaf people fail. I have found that I have made a big mistake by not putting my efforts where they should have been. I have also discovered that there could be no better field for me to be into than with the program that you have been working with to help the deaf.
>
> I wrote this letter mainly to ask you if I will be able to attend I.S.U. this coming Fall and that I would like to

> work in your department...I will wait for your answer on this before I decide what I want to major in. More or likely I will major in something that will concern the education of the deaf people after they get out of High School.

If adequate counseling services had been available the first year of the Project, this student would probably have been highly successful in his training program and placement.

One partially hearing boy joined one of the churches in the community and converted three more of his partially hearing friends. Two of the girls married--one to a normally hearing man, the other to a partially hearing student from the Project.

Results of orientation for Group C. The students who had lost their hearing postlingually, but whose losses had become progressively greater until they had little auditory discrimination for speech, expressed hostility toward many of their normally hearing associates.

Improper selection of coursework prior to the initiation of the Project had lead to feelings of futility in the deaf and hard of hearing students who had been placed in academic or technical courses without supportive measures. In some cases, it had become evident that the ability to succeed in the training program was not an indication that they could succeed in the subsequent vocational placement. As the emphasis in their educational programs was changed by the Project Staff, improved personal-social adjustment was noted.

Results of the orientation program for Group D. The major basis for the emotional problems among the students of Group D seemed to include: loss of acceptable body-image and resultant rejection of hearing tests and use of amplification. Their distorted self-concept from the adventitious hearing loss was evidenced through rejection of anything or anyone related to aural rehabilitation. Associated with this rejection were unrealistic vocational aspirations.

Family influence. Some of the parents could not accept their children's hearing impairment. The project funds were insufficient to provide all of the family counseling which was needed to help the parents change their attitudes.

The families of several of the students tended to reject and overprotect their children. One family was able to accept their multiply handicapped member only after the Project had put a value on her and helped her discover her remarkable abilities.

Financial problems attended the hearing loss of one man who was responsible for supporting a family. With the cooperation of the Department of Public Assistance, he was able to finish his course and find a satisfactory vocational placement.

Vocational Placement for the Total Project Population

Transitional vocational experience. A letter from the Director of the Curriculum Center at Idaho State University, Melvin Rexroat (1965), illustrated his attitude toward the limited hearing students from the Atypical Program.

> It has been most enlightening to see the quality of work which these students have shown in spite of their severe hearing and speaking handicaps.
>
> Through their efforts we were able to complete the cataloging and processing of over a thousand volumes. It was quite amazing to see the degrees of accuracy and completeness that they reached.
>
> We...hope that [it will be possible] to experiment and extend this kind of work further.
>
> Our door is always open if there are future possibilities for similar experiences.

The transitional vocational experience program provided good training and orientation to the expectations of the normally hearing community. The employers were given an opportunity to discover the satisfactoriness of limited hearing workers.

Post-project vocational placements. Table 37 shows the vocational placements for the full-time project students.

Other post-project placements. Table 38 illustrates the activities of the students who were not vocationally placed.

The unemployed person in Group B was not allowed to accept a position by his mother. The one in Group A was waiting for his family to set him up in his own upholstery shop.

The students in Group B who intended to continue studying included the young man who had spent one year in the Atypical and Exploratory Skills Programs and was planning to enter technical training, and the young man who had been dismissed by the Project Staff but who now recognized the value of further training and was making application for re-admission.

The three students in Group C inlcuded two profoundly deaf students who were doing very well in academic studies and the hard of hearing student who had left his studies for a year to go on a religious mission.

The adventitiously deaf young man of Group D was highly successful in his technical training and planned to continue.

Comparison of pre and post-program vocational placements. Table 39 shows the differences in the vocational placements of the full-time project students after they completed their training.

TABLE 37

POST-PROJECT VOCATIONAL PLACEMENTS

Vocational Placement	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Professional					
Teacher	0	0	1	0	1
Semi-professional					
Sculpture	0	0	1	0	1
Clerical					
File Clerk	1	0	0	0	1
Check Sorter	0	1	0	0	1
IBM	0	1	0	0	1
Library Office	1	0	0	0	1
General Office	0	1	1	0	2
Agriculture					
Farm Hand	0	0	0	0	0
Skilled Occupations					
Printing	0	3	0	0	3
Photography	1	0	0	0	1
Electrical	0	1	0	0	1
Upholstery	1	0	0	1	2
Body and Fender	2	0	0	0	2
Unskilled Occupation					
Greenhouse Planter	0	0	1	0	1
Total	6	7	4	1	18

Vocational placements included one professional (teaching), one semi-professional (sculpting), six clerical, nine skilled occupations (printing, photography, electricity, upholstery, body and fender), and one unskilled occupation (greenhouse worker).

TABLE 38

NON-VOCATIONAL POST-PROJECT PLACEMENTS

Placement	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Totals (N = 28)
Homemaker (Not Employed)	1	0	0	1	2
At Home (Not Working)	1	1	0	0	2
Planning to Continue Studies	0	2	3	1	6
Total	2	3	3	2	10

TABLE 39

COMPARISON OF PRE AND POST-PROJECT VOCATIONAL PLACEMENTS

Vocational Placement	Initiation of Project	Post-Project	Movement
Professional			
Teaching	0	1	+1
Semi-professional			
Sculpture	0	1	+1
Clerical	0	6	+6
Service Occupations	8	0	-8
Agriculture (Part-time & Full-time)	10	0	-10
Skilled Occupations	1	9	+8
Semi-skilled Occupations	1	0	-1
Unskilled Occupations	2	1	-1

Unskilled and semi-skilled occupations lost one student each while skilled occupations gained eight. Agriculture lost ten and service occupations lost eight. Clerical gained six, and semi-professional and professional each gained one.

Not only was the vocational placement level improved, but the type of occupation for each individual was more appropriate in regard to his abilities and disabilities than his previous occupation had been.

Comparison with national vocational placements. A comparison of the vocational placements of the full-time project students was made with the national picture. Table 40 shows the statistics.

In order to compare the statistics from the Project with the national statistics (Rehab. Serv. Series 63-5, 1962; VRA 157-64), all students with auditory perception for speech which tested from zero to 79% were rated as deaf. Those above 79% were rated as hard of hearing. These scores were recorded with their individual hearing aids in use. Since it is impossible to know just what was meant by deaf in the reported statistics, it was decided that discrimination for speech should be taken as a basis for making comparisons between national and project vocational placements.

Interpretation of national and project placements. Insofar as the national placements of deaf unable-to-speak, there were more professional and semi-professional placements as compared to no placements from the Project. The Project had more clerical and skilled occupations and no sales, service, agriculture, semi-skilled, unskilled, and family workers in contrast to national placements in these areas.

TABLE 40

COMPARISON OF NATIONAL AND PROJECT VOCATIONAL PLACEMENTS

Vocational Placement Areas	Percentages of Deaf Placements					
	Deaf Unable-to-talk (well)		Deaf Able-to-talk		Totals	
	Nat'l 1958	Project 1962-65 (N = 8)	Nat'l 1958	Project 1962-65 (N = 20)	Nat'l 1960	Project 1962-65 (N = 28)
Professional	2%	0%	4%	5%	3%	3.5%
Semi-professional	3%	0%	3%	5%	3%	3.5%
Managerial & Official	0%	0%	1%	0%	*	0%
Clerical & Kindred	14%	25%	18%	20%	17%	21%
Sales & Kindred	1%	0%	3%	0%	0%	0%
Service Occupations	11%	0%	23%	0%	12%	0%
Agriculture, etc.	4%	0%	4%	0%	4%	0%
Skilled Occupations	18%	50%	12%	25%	20%	32%
Semi-skilled Occupation	28%	0%	18%	0%	22%	0%
Unskilled Occupations	12%	0%	7%	5%	10%	3%
Family Workers	1%	0%	1%	0%	--	0%
Homemakers	6%	12.5%	6%	5%	9%	7%
At Home (not working)	--	12.5%	--	5%	--	9%
Continuing Training	--	0%	--	30%	--	21%

*Less than half of 1 per cent.

The deaf able-to-speak national and Project placements were nearly similar except that there were no Project placements in managerial, sales, service, agriculture, semi-skilled, and family workers.

In comparison with 1960 totals, it appears that the Project students had superior vocational placements to those on a national scale.

Table 41 gives the percentages nationally and in the State of Idaho for the number of deaf and hard of hearing rehabilitated in the year of 1961 (Rehab. Serv. Series 63-5, 1962) as compared with the project percentages during the years of 1962-1965.

The numbers of deaf and hard of hearing represented by the Project were almost the reversed amounts reflected in the national and Idaho statistics for aurally rehabilited persons. This may be the result of the supportive measures which made it possible for persons with very severe deficits to be able to profit from training programs at the post-secondary level. Previously, few of the persons which were admitted to the Project would have been able to successfully attend an existing educational facility. Those who might have been able to function within such a milieu would have been able to do so only in courses far beneath their potential.

TABLE 41

PERCENTAGES OF DEAF AND HARD OF HEARING REHABILITED

Area Represented	Deaf Unable to Talk Readily	Deaf Able to Talk Readily	Total Deaf	Total Hard/Hear.
National 1961			30%	70%
Idaho 1961	11.5%	11.5%	23%	77%
ISU Project (1962-1965)	25%	53%	78%	22%

Placement agent. Table 42 compares the manner in which deaf and hard of hearing persons secured vocational placements as reflected by national and project placement statistics.

TABLE 42

COMPARISON OF NATIONAL PROJECT PLACEMENT AGENTS

Agent	National Percentage	Project Percentage
Returned to or retained same job	19%	0%
Located own job	38%	22%
State Vocational Rehabilitation Agency	25%	(Integrated with Training Agent)
State Employment	5%	(Integrated with Training Agent)
Training Agency	9%	78%
Other Agency	4%	7.2% (Family)

An integrated service of placement was undertaken by the School of Trade and Technical Education, the Vocational Rehabilitation Agency, and the State Employment Bureau. Several of the students in the Atypical Programs found their own placements.

The local counselors for the Vocational Rehabilitation Agency made the follow-up contacts and shared their information with the Project Staff. Without the cooperation of the Rehabilitation Counselors, it would have been impossible for the proper post-program services to have been furnished the clients.

Job satisfaction. Job satisfaction as expressed by the project students on a questionnaire is shown in Table 43.

TABLE 43

JOB SATISFACTION BY GROUP AND TOTAL PROJECT POPULATION

Groups	Group A (N = 8)	Group B (N = 10)	Group C (N = 7)	Group D (N = 3)	Total (N = 28)
Vocational Placements	(N = 6)	(N = 7)	(N = 4)	(N = 1)	(N = 18)
Ratings	Occupational Satisfaction Level				
High	6	7	4	1	18
	Job Compared with Deaf Friends				
Equally good	2	0	1	1	4
Not equally good	0	1	0	0	1
Better	4	6	3	0	13
	Job Compared with Normally Hearing Friends				
Equally good	5	5	3	1	14
Not equally good	1	1	1	0	3
Better	0	1	0	0	1
	Post-Project Salary				
Competitive with Normally Hearing	5	7	3	1	16
Not Competitive	1	0	1	0	2

Interpretation of job satisfaction ratings. All of the students placed at the end of the Project expressed a high level of job satisfaction. Four felt that their placement was equally good, one not as good, and thirteen better than their deaf friends.

Fourteen felt their jobs in comparison with normally hearing friends were equally good, three felt that their placements were not as good, and one felt his job was better.

Sixteen reported their salaries were competitive with normally hearing employees. Two stated that their pay scale was below that of the normally hearing peer group.

Job satisfactoriness. All employers expressed their satisfaction with the limited hearing students who had been placed with them. Several stated that the limited hearing employees were equal or superior to the normally hearing persons who had been in the same type of placement previously.

Results and Interpretation of the Professional Training Program

Over one hundred majors in speech pathology and audiology became familiar with the programs necessary for the comprehensive rehabilitation of limited hearing persons. The professional training program at Idaho State University included all of the courses for the preparation of educators of the deaf in addition to the regular courses in audiology and speech pathology. Additional sessions of manual language were presented by instructors from the Idaho School for the Deaf and Blind.

Students from the elementary, secondary, special, and business education departments were also oriented to the problems faced by various types of limited hearing persons. Psychology majors and testing and counseling majors also visited the program.

Only a laboratory experience can satisfactorily prepare the persons in the "helping professions" to work with limited hearing people whose complex problems involve communicational, educational, personal-social, and vocational adaptation and adjustment.

DISCUSSION AND IMPLICATIONS OF RESULTS

The Project effectively demonstrated, through pre and post-program vocational placements, that to any individual with a given condition of hearing loss may be added an enhancement to his life's achievements.

The heterogeneity of the project populations provided a realistic appraisal of the needs of the prelingually and adventitiously deaf, the partially hearing, the hard of hearing, and the multiply handicapped with hearing losses. All the members of the various project groups needed comprehensive supportive programs to help them approximate their communicational, educational, personal-social, and vocational potential.

Manually-Oriented Deaf Students with Congenital or Early Childhood Losses and Severe Speech and Language Deficiences

Problems Faced

The manually-oriented deaf students had depressed achievement levels and varying degrees of emotional immaturity. They were unaware of the diversity of opportunities and expectations of the normally hearing community. They initially evidenced a great reluctance to accept help from anyone not a member of their deaf group. In turn, they were rejected by the oral deaf and hard of hearing members of the other project groups.

The determination of educational and vocational placements for these students was affected by their depressed level of language function. Since participation in courses designed for normally hearing students demanded a competitive level of language comprehension and usage, the members of this group were unable to participate satisfactorily in the standard offerings in the academic and technical fields.

Receptive aural communication was limited to contextual situations in which gestures and facial expressions furnished clues. Speech reading skills were not well enough developed to function in non-situational conversations but were reasonably satisfactory for most educational purposes related to the learning of trades. Amplification, when if any in assistance, provided awareness of environmental sounds only.

All but one student used manual language almost exclusively. With one exception, verbal responses were limited to a few single words of greeting and exclamation. One student had no oral nor written communication.

Most of the manually-oriented deaf students entered the Project feeling dejected, worthless, inferior, and inadequate. A number had spent the major part of their lives on welfare. Some of these students did not expect much from life because they had never had much. The need for a program geared toward helping them succeed in something was paramount. The immediacy of the building of a new self-image was evident.

First reactions to the demands made upon them were rejection and withdrawal. Their personal-social adjustment and vocational aspirations appeared to be at the preadolescent and early adolescent levels. They did not seem to be aware of the importance of additional training in the achievement of better vocational placements.

The lack of psychologists and counselors experienced with the manual deaf presented a problem for evaluation and interpretation of scores. The battery of tests standardized on normally hearing populations was inappropriate for prediction of educational, personal-social, or vocational success. The interest and aptitude tests were not suitable for application to this segment of deaf populations.

None of these students had been formally employed at the time of their admission. One had been full-time, and five had been part-time, farm hands. One had done maid work in a motel. One had been sitting at home. All but one had been employed only during the summer months.

The first transitional vocational placements were made in skills learned in the schools for the deaf. The complaints received were not a result of their preparation, but of their attitudes. The outcome, in most cases, was disastrous, but this experience provided a basis for instituting comprehensive supportive programs which would prepare the deaf students for better work adjustment in the future.

Findings and Implications of the Supportive Programs for Manually-Oriented Deaf Students

Communication. The severe deficiency in oral-aural skills did not represent the greatest problem in educational and vocational placements. Depressed language levels and accompanying low educational achievement levels caused the most serious difficulties.

Although the idea is held by some professionals that the teaching of oral communication to adult deaf is a waste of time, it was felt by the Project Staff that becoming more oral was one of the skills which would contribute greatly to better personal-social-vocational adjustment.

Manual language was learned by the Project Staff and a number of the professional trainees. This was the first step to assure a mode of communication with the manually-oriented deaf. The deaf students, however, were expected to improve their oral skills so that they might find satisfactory and effective post-program integration into the normally hearing and speaking community.

Educational placements. There was little need for adaptation of the communication media for the trade courses. The "buddy system" was used occasionally and interpretation by other members of the class was sufficient to overcome any teaching difficulties. All modes of communication were used for teaching purposes.

Serious problems were encountered when the manually-oriented deaf students with severe speech and language deficits were placed in the technical courses. This arrangement was unsatisfactory for both the deaf and the normally hearing students.

All of the deaf students needed educational adjustment. The teaching of concepts and vocabulary needed in their educational assignments was carried out effectively in the classes held after regular school hours.

Although the desirability of having full-time educators of the deaf as a part of the staff was unquestioned, most of the educational problems and needs were satisfactorily met by the normally hearing teachers who had had no previous experience with manually-oriented pupils. An indispensable adjunct to the Project Staff, however, were the part-time educators of the deaf who served as advisors to both staff members and project students.

Evaluation of the educational and vocational potential of each student was made satisfactorily through one or more of the following ways: placement in the exploratory skills units, tentative educational placements for observation, training in atypical programs for emphasis of special abilities, on-the-job training, or a preparatory course.

Personal-social orientation. A developmental, experiential program going from the known-to-the-unknown, the simple-to-the-complex, including an emphasis on "psychological readiness" and the stressing of abilities rather than disabilities, appeared to be effective in achieving better adjustment of the members of the manually-oriented deaf.

Personal-social maturity increased during the time the students were in the Project. Large areas of growth were noted in students in their desire to adapt to the hearing community. Programs which were geared toward helping the students to develop more self confidence and a better attitude about themselves appeared to be successful.

Greater personal-social maturity was noted in the emancipation by the deaf students from family dependence and, in most instances, attainment of good working relationships with the project staff, faculty members, and employers was achieved. Transitional vocational experience proved to be an effective way of establishing satisfactory employer-employee relationships.

The deaf students developed a better comprehension of long-term goals, lack of need for the immediacy of reward, and the development of an awareness of the opportunities, choices, and availability of resources within the normally hearing community.

An appreciation of the importance of adequate preparation and the rewards of heterogeneous associations by the deaf, hard of hearing, and the normally hearing students seemed to instill higher motivation and greater self-respect in the students who had initially been manually-oriented only. The deaf students attended the campus activities. Several dated normally hearing peers.

Continual, individualized attention was necessary for the deaf students in order for them to approximate their potential--educationally, personally-socially, and vocationally.

Vocational placements. The post-program vocational placements of this group of students was at a much higher level than their pre-project occupations. From part-time agricultural occupations, these students changed to the following vocations: two in clerical work, one in photography, one in upholstery, and two in body and fender. Satisfactoriness of the deaf employees was rated high by all of their employers.

Significance of the Findings

The post-program vocational placements obtained by the manually-oriented deaf demonstrated that they were able to greatly improve their vocational expectations and placements through participation in post-secondary level training programs in existing facilities for the normally hearing.

Partially Hearing Students with Congenital or Early Childhood Losses and Mild-to-Moderate Speech Deficiencies and Moderate Language Deficiencies

Problems Faced

The members of the partially hearing group did not follow the behavior patterns which most rehabilitation workers had been taught to expect. On the surface, it appeared that this Group would be the most easily integrated into the program for the normally hearing, but in actuality, the personal-social orientation of the partially hearing students presented some of the most complex problems experienced in the Project.

Although most of the members of this Group evidenced considerable residual hearing, they had been reared and/or educated with the manually-oriented, prelingually deaf. They identified personally, socially, and vocationally with the deaf and initially resisted any attempt to move them closer to the normally hearing community.

The members of the partially hearing group had developed reasonably good speech, but they did not want to use it. They refused to wear the hearing aids which were provided for them because their deaf friends rejected them whenever they evidenced any desire to adapt to the normally hearing community.

Speech reading skills of the partially hearing students were well developed for the restricted type of vocabulary used with their deaf associates. They made little use of the auditory avenue for receptive communication. Hearing aids were rejected.

Half of the partially hearing students was poor in reading and writing. All but two revealed inferior language development and depressed educational achievement.

The majority was unable to function successfully in the regular academic and technical courses. The members of this Group tended to aspire to only those vocations which had been profitably undertaken by the manually-oriented deaf in the past. They were unaware of the opportunities available to them in a university setting.

Personal-social orientation was similar to the manual deaf. Almost all were immature and unrealistic in their vocational expectations. They became the leaders of the manual deaf students and initially tended to encourage hostile behavior toward campus regulations and participation in supportive programs. They demonstrated attitudes toward transitional vocational placements equally irresponsible and unpredictable as those of the manual deaf.

Two of the students had attended Gallaudet for a short time. One had also tried unsuccessfully to go to a college for normally hearing students.

Previous vocational experience included one working as a presser, one as a dishwasher, one in personal and three in domestic services, one as a farmhand, and one in cabinet making.

Findings and Implications of the Supportive Programs for the Partially Hearing Students

Communication. As soon as the partially hearing students could accept a role of liaison between the manually deaf and the normally hearing populations and were able to develop self-concepts as hard of hearing rather than "deaf" individuals, the use of amplification made the improvement of oral-aural communication facile for all of the members of the partially hearing group.

Whenever interpretation was needed by the deaf group, one of the partially hearing students would be asked to assist. This responsibility helped establish their new role and gave them a feeling of personal worth and of value to the development of the program.

Education. The students participated in an undergraduate liberal arts program, restricted electronics course, regular, restricted, and atypical office skills, printing, and on-the-job training in check sorting and IBM operation.

Trade courses presented no problem. The students who elected this type of training would probably have done well in other educational placements, but they entered the first year of the Project and were unaware of other opportunities for training.

Students in the restricted office skills needed special grouping and help from both the instructor and the better students in the class who could interpret manually. Taped-typed notes were used for the student attending academic courses. Tutoring by the instructors and normally hearing students was satisfactory as soon as these students began using amplification and developed more functional auditory discrimination. The differentiation of educational placements was influenced greatly by the intellectual functioning, emotional stability, motivation, and degree of identification with the manual deaf and/or the normally hearing communities.

Personal-social orientation. As success was experienced in the association with the normally hearing campus and community, there was a conversion of fear and hostility to positive attitudes. Improvement in activities seemed to be in relationship to personal-social adjustment rather than to a degree of hearing loss. The majority of the members of the partially hearing group dated normally hearing peers. Several became active in fraternity and church groups.

Vocational placements. The post-program vocational placements of this Group were at a much higher level than their pre-project occupations. The previous occupations consisted of one skilled and the rest unskilled, semi-skilled, or service occupations. The post-program placements included three clerical and four skilled vocations. Satisfactoriness was rated high by all of the employers of the partially hearing students.

Significance of the Findings

The partially hearing students made the most dramatic improvement of all the project groups. In spite of their previous identification with the manual deaf, they were able to develop new self-concepts and ultimately contributed to the amalgamation of the manually and orally-oriented populations. They clearly demonstrated the value of association with normally hearing students as a means to achieving good personal-social and vocational adjustment in the normally hearing community.

Oral Deaf and Hard of Hearing Students with Congenital or Early Childhood Losses and Mild Speech and Language Deficiencies

Problems Faced

The hard of hearing students who had received part of their education in the schools for the deaf displayed a confused self-image. They were not able to identify with the manually oriented deaf as comfortably as did the partially hearing. At the same time, their language development and educational achievement levels were inferior to their normally hearing associates.

Some of the hard of hearing students with high frequency losses who wished to enter the Project were initially rejected by the Staff because they were not recognized as underachievers until they had failed their courses with the normally hearing students and were left with no choice other than entering a trade. This was corrected the second year of the Project by providing appropriate supportive measures to the hard of hearing pupils.

The Group of the oral deaf and hard of hearing was made up of students with highly disparate educational backgrounds and intellectual functioning. Those who had attended regular public school programs demonstrated that they had been unable to function up to their potential because no supportive measures were available. Several of the Group had mixed hearing losses; several were multiply handicapped.

Poor educational counseling for the student who had just completed her bachelor's degree had directed her into a profession for which she was unsuited because of her severe-to-profound hearing loss. One student had already been trained in two different occupations by the Department of Vocational Rehabilitation, but neither area had been suited to her special talents and her multiple impairments.

Several had emotional problems; some were extraordinarily rejected by their families; one was on welfare.

All but one of the students had worked at some time: one in a factory, one in building and two in domestic services, and one in an office.

Findings and Implications of the Supportive Programs for the Oral Deaf and Hard of Hearing

Communication. One student with cleft-palate repair and a second student with little development of any communication skills achieved good oral communication. All other students had normal speech, even though some of them had lost their hearing prelingually.

Education. The educational assignments depended mainly upon levels of intellectual functioning and educational achievement rather than upon degree of hearing loss. Those who had been educated with normally hearing students through high school were able to enter the regular academic courses. Tutoring and weekly conferences with instructors provided sufficient supportive measures.

The students with little or no formal education were very satisfactorily trained in the atypical programs and through on-the-job training.

Personal-social orientation. The majority of the oral deaf and hard of hearing who had been educated with normally hearing peers functioned at the same level of personal-social maturity as their normally hearing peers. Counseling was provided for the students and families evidencing emotional maladjustment. Insufficient travel funds intereferred with providing the amount of counseling which was needed for some family situations. As the Project progressed, the family of one student, however, was better able to accept her disabilities.

Vocational placements. With the exception of one student who had worked in an office, the unskilled and service occupations were replaced by: one in professional sculpture, one in special education, and one in an office. The student who had been on welfare was trained to work as a planter in a greenhouse. Three other students planned to continue their education.

Significance of the Findings.

Neither schools for the deaf nor regular public school classrooms without supportive measures are satisfactory for students with high frequency losses at the elementary, secondary, or post-secondary levels. These students tend to become both educational and vocational underachievers.

The oral deaf, in contrast to the manual deaf and partially hearing, need few supportive measures. Tutoring, notetakers, and weekly conferences with the teachers by the project coordinator are effective.

The oral deaf who have done poorly in high school may do well at the post-secondary level if they are highly motivated and given sufficient supportive assistance.

Atypical programs and use of community facilities are useful in solving the problems of the exceptionally talented, the multiply handicapped, or the oral deaf with little educational preparation. This approach permits educational and vocational placement by abilities rather than by disabilities only.

What may be educationally feasible for an oral deaf person may not be vocationally feasible. This is one aspect of placement which presents great difficulty for the rehabilitation counselor if there is no special staff at an educational facility to assist in choice of training area and to provide appropriate supportive measures. Comprehensive evaluative and supportive programs can provide the opportunity for many oral deaf and hard of hearing students to approximate their vocational potential by attending facilities for the normally hearing students.

Deaf and Hard of Hearing Students with Adventitious Losses in Adulthood and no Related Speech and Language Deficiencies

Problems Faced

Although the adventitiously deaf and hard of hearing students did not have the speech, language, and educational deficits characteristic of many of the manual deaf and partially hearing students, the supportive programs for personal and family counseling, and the adaptation of communication media were of paramount importance to the successful training of the Group.

The adventitiously deaf and hard of hearing students were variously unaware of the existence or the importance of speech conservation, the development of speech reading skills, re-training for those who had lost their employment, or the danger of high-level noise to those who were hard of hearing and those with progressive losses.

The majority of the problems faced by this Group were caused by disoriented family members who tended to overprotect or reject their hearing-impaired members. Some of the students themselves evidenced difficulty in accepting their hearing loss with its associated problems relating to educational and vocational placement. The adventitiously deaf in adulthood rejected any identification with the manually deaf.

Insufficient financial support for the student with family obligations threatened to interrupt his re-training program.

Findings and Implications of the Supportive Programs for the Adventitiously Deaf and Hard of Hearing in Adulthood

Communication. Conservation of speech, better fittings of individual amplification, improved speech reading skills, and more effective use of residual hearing resulted from the speech and hearing therapy program.

Education. Tutoring and taped-typed teachers' lecture notes were satisfactory supportive education measures. One student was placed in a graduate education program, one in a technical and one in a trade program.

Personal-social orientation. The students with adventitious losses often need consisten, long-term counseling as well as vocational re-training.

Vocational placements. The student who had been working as a farmhand was retrained in upholstery. The problem of working in background noise combined with a somewhat depressed educational level indicated that this trade would be desirable placement.

The former school teacher did not complete her graduate training because of family pressures, but she received "A" grades during the time she was in the program.

A third student continued his technical training course at the termination of the Project.

Significance of the Findings

The public, the families, and the deaf and hard of hearing persons themselves need to understand the meaning of hearing loss which occurs in adulthood. The need for supportive measures to assist them in reaching or recovering their personal-social and vocational potential must be made apparent to all persons related to their training and employment.

Job Finding and Employer Relationships for Limited Hearing Populations

An approach to job finding for limited hearing persons in semi-rural and rual areas was made by the Director of the School of Trade and Technical Education (Rucker, 1965):

> It is my concept that a survey could be run through the existing service clubs, churches, and other organizations in each community. The number of persons needing development beyond the non-employable or limited-employable state could be discovered. At the time, jobs existing in the community could be identified and a correlation made between the abilities of the people involved and the educational placements.
>
> In general, the problems would vary little from city-to-city, and town-to-town. This information could be processed and analyzed so that training could then be set up at an institution oriented to such services.
>
> The majority of the unemployed or underemployed would plan to return to their local community because many of them might

> not be ready to face the highly competitive world of the unknown.
>
> The expense involved in making respectable wage earners and tax payers would be comparably low. I am sure that they would be proud citizens and an asset to their communities rather than liabilities.

Employer relationships. The advisor for vocational placement and employer relationships (Myers, 1965) described his philosophy in the following manner:

> First, I think it paramount that when dealing with the students in the program we work with their abilities rather than their disabilities. Realistically, each of us must be considered to be handicapped; we learn to minimize our shortcomings and capitalize on our assets. Recognizing that each student in the program has a severe handicap, I feel it is our obligation to discover those abilities that will be of most value to the individual in helping him lead a productive existence and help him develop those abilities.
>
> With regard to the value of the vocational transition aspect, I can only say that any action taken under the program to help the student make this difficult adjustment should be of value. I strongly feel, however, that once standards of performance are established no quarter must be given; most employers will not allow substandard performance regardless of the reason.
>
> Just as we must learn to emphasize the student's abilities, we must also learn to "sell" those abilities to the employer. No employer will consider hiring a grant student because he is an exception or a sympathetic figure. An employer will hire one of the students to get a job done; he will hire a student with abilities and qualities that can be effectively utilized. I feel strongly that employers cannot be expected to hire students who deviate too widely from these requirements.
>
> This is not to imply, however, that contact under the grant program should end with placement. On the contrary, this phase of the rehabilitation process is, in my opinion, of major importance. Contacts with both the employer and the employee should be made on a regular, organized basis. Above all, the contacts should be meaningful. i seriously doubt that many employers will find the time to complete forms or hold discussions with ISU [Idaho State University] personnel if no obvious value is going to come from the effort. Perhaps much of this is a matter of effectively communicating with the employer and letting him know to whom he can turn if problems develop.

> As far as the method of contact is concerned, I feel that nothing would be of more value than personal discussions with the employer. These should be purposeful discussions; I would even suggest a patterned interview or some other specific technique be used. If a personal visit is impractical, a telephone contact could be used; the impersonal nature of the telephone, however, would prevent reaching the depth possible in a personal contact. Another effective tool is the questionnaire.
>
> I feel that a good questionnaire for this follow-up should possess four basic qualities: (1) it should be brief: (2) it should be void of irrelevant material; (3) it should be clear and designed so as to prohibit personal interpretation; and (4) it should provide an opportunity for the employer to freely express himself in areas of personal concern or in areas which he feels are not adequately covered by the questionnaire. I would suggest that the questionnaire be used only between personal contacts until the employer is familiar with the form and its use.
>
> The frequency of follow-up contacts should, I feel, be determined on an individual placement basis within minimal limits. In most cases, I would suggest monthly contacts upon placement for three months, then contacts can become infrequent depending upon the success of the placement.

Professional Training Program

The type of supportive programs needed by the individuals attending the program demonstrated the importance of training personnel capable of grasping the interrelationships of communication, education, orientation, and transitional vocational experience to the ultimate satisfactory persona-social adjustment and vocational placement. Expertise in one habilitative or rehabilitative profession was not sufficient for the realistic planning and developing of comprehensive supportive programs for limited hearing adults.

SUMMARY

The basic questions asked of the Project were: Could an effective solution to the vocational problems of the limited hearing populations be found through the utilization of existing educational facilities, how could this be done, and what were the factors which contributed to success or failure?

The focus of the comprehensive program was on the enrichment of the communicational, educational, vocational, and personal-social experiences of limited hearing persons representing the broad spectrum of the hearing impaired. The heterogeneity of the project population provided a realistic appraisal of the needs of the prelingually and adventitiously deaf (manually or orally oriented), the partially hearing, the hard of hearing, and the multiply handicapped with hearing losses.

Evaluations of the supportive programs were made in respect to (1) pre and post-program levels of functioning, (2) rate of improvement, (3) satisfactory functioning level at admission and termination by individual and group scores, and (4) need for additional help at the end of the training programs.

These measures were obtained from (1) batteries of tests given pre and post-program, (2) from ratings assigned by two committees--one knowledgeable, and one inexperienced in the problems of limited hearing persons--and (3) by job satisfaction and satisfactoriness as reported by students who had completed their programs and their employers.

The evaluation of the success of the Project was made in terms of how well all of the limited hearing participants had achieved the personal-social adjustment levels and the vocational competence of which they were individually capable. Results were interpreted in comparison with normally hearing peers.

Results in the Area of Communication and the Significance for Rehabilitation Workers

Scores of receptive and expressive communication skills were interpreted in light of expectations for normally hearing students. Ratings were assigned in the following manner: good (satisfactory for most communication needs), fair (usually satisfactory but needing improvement), and poor (unsatisfactory for ordinary communicative purposes).

Pre and post-program levels of functioning were weighted according to: no function = -2, poor = -1, fair = +1, and good = +2. The ratings were converted into group means for the purpose of comparison. The changes in functional ability were interpreted through the use of percentages.

Supportive measures for the area of communication included speech therapy and conservation, auditory training, speech reading, language improvement, preparatory public speaking, and remedial reading and writing.

Expressive communication skills. Expressive communication skills were evaluated for satisfactoriness of respiration, phonation, resonation, articulation, language, and sentence development. The last three were tested by the Templin battery (1957). Vocabulary was evaluated by the Ammons Full Range Picture Vocabulary Test (1949). Reading, written language and manual language were not reported in the post-program percentages.

The manually-oriented deaf students with congenital or early childhood losses and severe speech and language deficiencies showed a 42% increase in expressive communication skills. These students displayed the most serious speech and language deficits, both pre and post-program, of all the project students.

Two of the students in the group of oral deaf and hard of hearing students with congenital or early childhood losses and mild speech and language deficiencies affected the overall ratings of the group because of pre-program unintelligible speech. Their post-program scores raised the functional change rating by 40%.

The partially hearing students with congenital or early childhood losses and mild-to-moderate speech deficiencies and moderate language deficiencies seldom employed speech among themselves. As a result of the use of amplification and increased desire to utilize the oral-aural modes of communication, pre and post-program scores indicated an 18% functional improvement. Language deficiencies were never satisfactorily adjusted in the manually-oriented deaf nor the partially hearing students so that they were able to compete with the normally hearing students in academic or regular technical programs.

It was postulated that the improvement shown by the severely and profoundly deaf students' oral communication may have been related to certain procedures used in speech improvement sessions. In the cases of the manually oriented students, it was felt that improved motivation to emphasize oral skills may have also been related to being placed in a milieu of normally hearing associates.

The adventitiously deaf and hard of hearing in adulthood had no expressive communication problems pre or post-program.

Receptive communication skills. Audiological assessments included pure tone testing by air and bone conduction, speech reception threshold and aided discrimination tests. Speech reading evaluations were devised for each student according to his experiential background. Ratings were assigned according to pre and post-program ability to use speech reading functionally in educational, social, and vocational settings.

Reading achievement for most students was not tested post-program. The goal of the educational adjustment program was to help each student succeed in his particular educational placement. Three students who were illiterate, or nearly so, as shown by pre-program testing, increased their reading skills from two-to-four grade levels.

Receptive skills demonstrated a movement of 55% for the partially hearing, 16% for the manually oriented deaf and the oral deaf and hard of hearing groups, and 13% for the adventitiously deaf and hard of hearing. Better use of residual hearing through the application of amplification and improved speech reading skills brought about dramatic results in the functionalism of oral-aural communication for the partially hearing students. This improvement appeared to be related to a recognition of a new role as a liaison between the manually-oriented deaf and the normally hearing communities. By the time the partially hearing terminated their training, they behaved more like hard of hearing than deaf persons.

Careful orientation to the dangers of continued exposure to high level noise was needed by the students who had become adventitiously hard of hearing or deaf in adolescence or adulthood. The importance of the use of auditory cues, speech reading, and training for the conservation of speech had to be stressed.

Manually-oriented deaf students improved in speech reading when they began to emphasize oral communication rather than manual language. Members of the group of orally-oriented deaf and hard of hearing students were excellent speech readers. Functional improvement in the use of the auditory avenue in the severely deaf students showed almost no improvement. In some cases, environmental awareness was developed through the use of individual amplification.

There was an increase of 22% in the number of students who were rated as functionally satisfactory in expressive communication skills by the end of the Project and an increase of 13% in the area of receptive skills.

Manual skills and the normally hearing associates. Only one of the profoundly deaf, nonoral students improved his manual skills. The oral deaf and hard of hearing refused to learn manual language. The resistance to learning to communicate manually on the part of the oral deaf students seemed to be related to a fear of being identified with a deaf population--particularly one with problems different from their own. This was particularly true of the students who had become adventitiously deaf in adolescence or adulthood. The mutual rejection of manual and oral students was largely overcome by the second year of the Project.

Many of the professional trainees and members of the student body learned manual skills. The members of the Project Staff were required to be able to communicate with finger spelling and some signs. Several of the regular faculty members and normally hearing students were already familiar with manual language before the initiation of the Project.

Satisfactoriness of communication skills. The increase in students rated in post-program evaluations as having satisfactory oral communication skills was 22%. Receptive skills showed an increase of 13%. Total oral-aural communication satisfactoriness increased 13% during the Project.

Modifications of communication media. Supportive measures included special notetakers, taped-typed instructors' notes, copying classmates' notes, tutoring by friends, instructors, or professional trainees, maximum use of audio-visual aids, manual interpretation, and orientation of the faculty. Special grouping within the class or individual attention given by the instructor to the limited hearing students tended to impede the progress of the normally hearing students.

Speech and vocational placements. Four students reported that they rarely needed good speech on the job, eight stated that they frequently found it necessary, and six that they needed speech continually. Thirty per cent of the students who indicated that they needed speech frequently or continually in their vocational placements had been nearly unintelligible when they entered the Project.

Results in the Area of Education and the Significance for Rehabilitation Workers

Educational placements. The manually-oriented deaf students were placed in the following educational programs; one in restricted and two in atypical office skills, one in atypical crafts and photography, and four in trades. None of the manual deaf with severe speech and language deficiencies were prepared to enter academic or technical courses. Because of their profound deafness and poor educational achievement levels, courses which demanded an extensive vocabulary related to intricate mechanical repair were not suitable. Several distinguished themselves, however, in upholstery and body and fender in competition with the normally hearing.

The partially hearing students attended courses in the following areas: one in regular, one in restricted, and two in atypical office skills, one in liberal arts, one in restricted technical, and two in on-the-job training. The majority of the students needed substitute courses in all subjects demanding a high level of language development.

Of the oral deaf and hard of hearing, three were placed in liberal arts, one in restricted and one in atypical office skills, one in sculpture, and one in on-the-job training. The oral deaf who had done poorly in high school did well in post-secondary level programs when they were given sufficient supportive assistance.

The three students who had become adventitiously deaf and hard of hearing in adulthood attended a trade course, a technical program, and a graduate education program.

Educational adjustment. The educational adjustment program was necessary for all the manual deaf, the partially hearing, and the members of the other groups who had poor educational achievement levels. Emphasis was given to concepts and vocabulary needed in their educational assignments as well as some drill in basic subjects such as reading, composition, and mathematics. The educational adjustment classes were held after school hours.

Although the desirability of having full-time educators of the deaf as a part of the staff was unquestioned, most of the educational problems and needs of the various limited hearing students were satisfactorily met by regular faculty and staff who were given an orientation to the supportive programs introduced for the deaf and hard of hearing students. Part-time advisors from the Idaho School for the Deaf and Blind were an indispensable adjunct to the Project Staff.

All modes of communication were used for educational and personal-social adjustment purposes.

Severe deficiencies in oral-aural skills did not represent the greatest problem in educational and vocational placements. Depressed language and low educational achievement levels of the manual deaf and the impaired auditory discrimination for speech in the hard of hearing with high frequency losses were areas which called for specialized supportive measures.

Results in the Area of Personal-Social Orientation and the Significance for Rehabilitation Workers

The personal-social orientation ratings were subjectively determined by the psychiatric social worker's observations of students over the time they were on the Project. He had at his disposal a case file for each student which included: pre-admission counseling notes, initial student interview, initial student/family interview, complete social history, quarterly student interview notes, quarterly family interview notes, social club observation notes, comments from the project staff, faculty members, employers, and psychological test results. The latter were not entirely reliable since there was no one experienced with the manual deaf to administer and interpret the results.

The characteristics studied were: passivity-activity, dependency-independency, simple-complex behavior, shallow-deeper interests, short-time-long-time perspectives, subordination-equality, lack of self awareness--control over self. Each was rated numerically according to his interpersonal relationships to hearing peers, deaf peers, father, mother, siblings, teachers, project personnel and employers.

Some of the limited hearing students appeared not to expect much from life because they had never had much. The need for a program geared toward helping them succeed was paramount. Linked to this was the importance of building a new self-image.

Two of the major adjustment problems of the students from all groups in the Project were rejection and dependence. Counseling was urgently needed by several families who were unable to accept their limited hearing children. Initially some of the faculty members also tended to overprotect or reject the limited hearing students.

Growth noted. The descriptive ratings for the pre-program adjustment of the various groups of full-time project students underwent decisive changes. Large areasof growth were noted in the students in their desire to adapt to the hearing community.

The manually-oriented deaf and the partially hearing students responded well to a developmental-experiential approach to their problem of social immaturity. A program going from the known-to-the-unknown, the simple-to-the-complex, and including an emphasis on "psychological readiness" and the stressing of abilities rather than disabilities appeared to be effective.

These same students developed better comprehension of long-term goals, lack of need for the immediacy of reward and a development of an awareness of the opportunities, choice and availability of resources within the normally hearing community. An appreciation of the importance of their opportunity for adequate preparation and the rewards of heterogeneous associations with the normally hearing seemed to instill higher motivation and greater self-respect.

The partially hearing students made the most dramatic improvement of all the project groups. In spite of their previous identification with the manual deaf, they were able to develop new self-concepts and ultimately contributed to the amalgamation of the manually-oriented limited hearing populations and their normally hearing associates.

Oral deaf and hard of hearing with congenital or adventitious losses in childhood, adolescence, or adulthood, who had been educated with normally hearing peers functioned at a level similar to their normally hearing peers.

Unrealistic educational and vocational aspirations and the need for personal and family counseling, however, were just as much in evidence with the oral deaf and hard of hearing (congenital or adventitious losses) as with the manually-oriented deaf and partially hearing. The latter groups, nevertheless, seemed better able to accept their hearing impairments than the adventitiously deaf in adolescence and adulthood.

As the self-concepts of the limited hearing populations improved, all of the students were better able to accept the challenges of the normally hearing environment. Many of the partially hearing students, as well as several of the manual deaf, joined the oral deaf and hard of hearing in dating normally hearing associates. One partially hearing student joined a fraternity; several participated in community and church organizations. All of the project students except three older, married students, joined in the campus activities.

The project students were well accepted by their normally hearing associates. Transitional vocational experience provided an effective way of establishing satisfactory employer-employee orientation. Many of the employers took satisfaction in the achievements of the students while in training and transitional vocational placements and later showed similar pride in their successful vocational placements.

Results in the Area of Vocation and the Significance for Rehabilitation Workers

Unrealistic vocational goals were held by nearly all of the project students. The manual deaf and partially hearing evidenced marked vocational immaturity. They were unaware of the opportunities and expectations to be found in the normally hearing community. They needed to learn how to interpret situations less rigidly than their previous sheltered experience had taught them.

The oral deaf and hard of hearing with congenital or adventitious losses needed to select their training programs according to the vocational areas which would be compatible with their particular type of hearing impairment.

Vocational placements for all the project students included one professional (teaching), one semi-professional (sculpting), six clerical placements, nine skilled occupations (printing, photography, electricity, upholstery, body and fender), and one unskilled occupation (greenhouse worker).

Compared with pre-project placements, unskilled and semi-skilled occupations lost one person each while skilled occupations gained eight. Agriculture lost ten and service occupations lost eight. Clerical placements gained six, and semi-professional and professional each gained one.

Not only was the vocational placement level improved, but the type of occupation for each individual was more appropriate insofar as abilities and disabilities were concerned than the pre-project placements had been.

Job satisfaction. All of the students placed at the end of the Project expressed a high level of job satisfaction. Four felt that their placement was equally good, one not as good, and thirteen better than their deaf friends.

Fourteen felt their jobs compared with normally hearing friends were equally good, three felt that their placements were not as good, and one felt that his job was better.

Sixteen reported their salaries were competitive with normally hearing employees. Two stated that their pay scale was below that of the normally hearing peer group.

Job satisfactoriness. All employers expressed their satisfaction with the limited hearing students who had been placed with them. Several stated that the limited hearing employees were equal or superior to normally hearing persons who had been in the same type of placement.

Preparation of Professional Trainees

The Project contributed to several aspects of the professional training program at Idaho State University. An opportunity to observe and to participate in supportive measures designed to help persons with various types and degrees of limited hearing to more nearly approximate their educational, personal-social and vocational potential was provided. The need for a multidisciplinary approach to the evaluation and training procedures was dramatically demonstrated to over one hundred majors in speech pathology and audiology as well as to students from the departments of education, special education, psychology, business administration, and testing and counseling.

Experiental learning was as effective a teaching method for the professional trainees as it was for the limited hearing students in the Project.

Some Problems Pertinent to the Education of Limited Hearing Adults

Problems faced by administrators. Because of the lack of sufficient educational facilities for post-secondary training programs and because schools of trade and technical education are judged by the quality of their graduates, great care has to be exercised in the selection of limited hearing individuals who are to fill some of the regular program openings.

Administrators find it unjustifiable and rehabilitation counselors, families, and other agencies find it unsatisfactory and expensive to place students in training programs in which they fail. The result is unemployment and underemployment for the individual and closed doors to prospective students with impaired hearing.

Supportive measures make it possible for many limited hearing adults to participate successfully in the regular curricula. Atypical units may be set up as adjuncts to the existing programs and the participation of other specialized educational resources in the community are useful in solving the problems of the exceptionally talented, the multiply handicapped, or the students with little educational preparation. This approach permits educational and vocational placements based on abilities rather than by disabilities only.

Multi-tract and conjoint programs, evening curricula, and special lecture series can offer additional opportunities and advantageous use of existing facilities for full-time and part-time limited hearing students. These approaches would be especially useful in providing further education for the manual deaf since the Project demonstrated that not more than 15% of a regular trade class should consist of manually-oriented deaf students. Any number of the oral deaf and hard of hearing who have competent levels of language development and adequate educational backgrounds may be integrated with normally hearing students providing appropriate supportive programs are available to them.

Problems faced by counselors. The experiences of the limited hearing persons who had attempted to improve their vocational placements by additional training previous to their entrance into the Project demonstrated that what may be educationally feasible for a limited hearing person may not be vocationally feasible for him. Fourteen per cent of the project students initially chose training areas which were unsuitable either educationally or vocationally.

The usual evaluation procedures and staffing of cases need to be followed by supportive measures related to each student's aptitudes and psychological readiness. Preparatory courses, exploratory skills units, atypical units, and transitional vocational experience are effective ways of orienting the limited hearing students and for providing observational opportunities for staff members before recommendations for educational placements are made.

RECOMMENDATIONS

Suggestions for the Establishment of Similar Programs for Limited Hearing Adults

Supportive programs for limited hearing adults need to be established in numerous existing educational facilities for normally hearing students.

Types of Training Programs

The educational facility should offer academic, technical, and/or vocational (trade) courses. Accredited courses should be available with established degree requirements. Certification should be provided for limited hearing students who are unable to complete all of the work in certain technical areas but who can qualify for less technical positions as a result of special training. Grading procedures for limited hearing students should be competitive with the normally hearing student body.

Academic programs. Academic programs on the undergraduate and graduate levels should be available to students with satisfactory educational backgrounds.

Technical programs. Technical training should be offered on either a regular or restricted (modified) basis depending upon the student's ability to handle the theoretical and language aspects.

Multi-tract programs. Multi-tract programs in the various technical areas should be available for a student body consisting of various degrees of ability and levels of preparation. These programs are especially helpful in securing satisfactory educational placements for limited hearing students.

Trade programs. Trade programs should be provided according to potential job placements and individual abilities of the students.

Atypical programs. Atypical programs should be set up at the training institution as adjuncts to the regular programs or should exist as allied training units within the community. These special courses are useful in solving the training problems of the exceptionally talented, the multiply handicapped, or the students with little educational preparation.

Adult evening classes. For the limited hearing persons who do not wish formal full-time course work, evening classes in material pertinent to their successful integration within the normally hearing community should be made available.

Some of the regular training courses may be offered on a once-a-week basis so that a higher level of functioning can be achieved by persons who wish to work and study simultaneously.

Conjoint programs. The scheduling of the trade, technical, and academic facilities for the manual deaf at times when they are not being used for the normally hearing students would allow for:

a. more effective use of existing facilities by utilizing their potential space and equipment in double schedules daily, on week-ends and during vacation periods.

b. a larger number of students may be taught in segregated classes where manual language or modifications of course material is available for those who need special help, but in which

c. an opportunity for the manual deaf students to be socially integrated with their normally hearing peers in all other aspects of campus life would be provided.

Number of Limited Hearing Students in Integrated Classes

Not over 15% of a regular trade class should consist of manually-oriented deaf persons. Any number of the deaf and hard of hearing who have competitive levels of language development and adequate educational backgrounds may be integrated with the normally hearing students providing appropriate supportive programs are available to them.

Location of Programs

Educational programs for limited hearing students should be located in rural and semi-rural areas as well as metropolitan centers. Ideally, many types of educational opportunities should be available at one institution or in a combination of institutions within easy transportation distance of a Center for the supportive programs.

If a number of institutions are involved, satellite supportive centers should be established in each institution or nearby community centers and staffed with full-time or part-time counselors, clinicians, and coordinators. A central staff consisting of a director, coordinators, and part-time special consultants should then be set up on an itinerant basis.

Supportive Measures

Experiential evaluative procedures. Supplementary evaluative procedures are needed in addition to the standard battery of psychological, educational, and vocational tests. An exploratory skills unit, a preparatory course, tentative assignment to courses of the student's choice or staff assignment, and on-the-job training opportunities provide for observation of special abilities and disabilities of individual students.

This approach assists the student in developing a more realistic understanding of the opportunities in different vocational areas. Transitional vocational experience provides a more realistic understanding of the demands of employer-employee relationships in a normally hearing community.

Pre-program preparatory measures. A preparatory program or atypical programs may be used to assist the limited hearing student to raise his level of functioning to a point at which he is able to function satisfactorily in a group of normally hearing students.

On-going supportive educational measures. Educational adjustment programs should be available to students who need help in raising their level of functioning in basic subjects such as arithmetic, reading, composition, spelling, and vocabulary. These areas should also be correlated with the needs evidenced in the educational courses in which the students are participating.

Substitute courses for a high level of theoretical or language function in the regular technical programs may be offered at the Center. Modified training should lead to certification rather than formal graduation from the institution.

Exceptional students who are studying in the atypical courses and who may be capable of advanced academic work, but who do not qualify for admittance to degree-granting courses, should be provided with advanced educational adjustment courses in individual or small-group sessions.

Modifications of the Communication Media

Special notetakers, taped-typed instructors' notes, copying classmates' notes, tutoring by friends, instructors, or professional trainees, manual interpretation, maximum use of audio-visual aids, and orientation of the faculty are the major modifications needed in the classroom. Special grouping within the class or individual attention given by the instructor tends to impede the progress of the regular students.

Improvement of communication skills. Supportive communication measures should include speech therapy improvement and conservation, auditory training, speech reading, language development, preparatory public speaking and individual supportive help for students attending regular courses in public speaking.

Periodic auditory assessments and selection of individual amplification should be made.

Realistic personal-social adjustment. Activities appropriate to the psychological eras of the various limited hearing students should be provided. Programs should offer experiences going from the known-to-the-unknown and the simple-to-the-complex. Gradual assimilation of the manual and oral deaf, the partially hearing, and the hard of hearing students may be accomplished by intra-group activities. The amalgamation of the limited hearing and the normally hearing students may be accomplished through participation of the former in the regular campus activities. Programs suitable for older students and married couples should be provided.

Counseling and orientation for students, families, staff, faculty, employers, and professional trainees should be available.

Personnel

The administrator or director for the supportive programs may be from any one of the disciplines related to a comprehensive program for limited hearing adults. Ideally, this position should be filled by someone who has had experience with heterogeneous hearing-impaired populations in a post-secondary educational setting. He should be conversant with the multidisciplinary approach essential to successful educational and vocational placements of deaf, partially hearing, and hard of hearing individuals. (For a more detailed description of personnel see the section on cost.)

Professional trainees. Traineeships should be awarded to persons from various disciplines related to the rehabilitation of limited hearing persons for multidisciplinary training in comprehensive habilitation and rehabilitation of the deaf, partially hearing, hard of hearing, multiply handicapped with hearing losses, and persons with nonorganic hearing losses.

The new roles in administrative and clinical direction go beyond the preparation provided for one professional entity.

Follow-up Programs

Follow-up programs including the same supportive measures as those available in the training programs are necessary for the majority of the manual deaf and partially hearing.

The Center should provide a place for all of the "graduated" limited hearing persons to congregate for contact with on-going programs and for participation in evening lectures or additional training courses. Continued help in improving communication skills and in achieving greater personal-social adjustment may also be indicated.

Estimated Cost of Providing Training Programs for Limited Hearing Adults in Existing Facilities

There are three costs which are basic to the reporting of the expense involved in the training of limited hearing adults in existing facilities for the normally hearing.

The costs relate to (1) the expense to the student, his family, or the agency supplying the regular educational funds and board and room, (2) the institution per capita cost, and (3) the supportive programs needed for habilitation and rehabilitation of limited hearing students. The question of whether the last expense should be underwritten by the student, the institution, or an agency is one which may vary with the location of the program.

Idaho State University (White, 1967) reported an annual charge to normally hearing students of $1,010.00. Gallaudet College (Nance, 1967) received $900.00 a year from each deaf student.

Gallaudet College estimated that it spends $2,140.00 a year to educate one deaf pupil. Idaho State University stated that the annual cost to the institution was $2,000.00 per capita for normally hearing students.

The estimated cost of supportive measures to assist limited hearing adults by providing a central supportive program is between $500.00 and $2,000.00 depending upon how extensive the services are which are needed by a specific student and by how many members of the regular staff are used in part-time assignments to the supportive programs.

Table 44 gives the cost to the student, to the institution, and the estimated average additional expense involved in supplying the supportive measures needed by the majority of limited hearing students attending existing facilities for the normally hearing.

The most efficient way of utilizing personnel necessary for a large comprehensive supportive program is to establish a source of funds--institutional or agency--for the positions of director, coordinators (one for men and one for women students), and part-time special consultants in audiology, speech pathology, education of the deaf, psychology, and vocational counseling. The persons occupying these positions should be experienced with all types of limited hearing adults. This central staff could direct and advise a one-facility or multi-facility program.

Full-time or part-time staff members consisting of psychiatric social workers, audiologists, speech and hearing clinicians, educators of the deaf, special teachers, tutors, and office staff should be appointed according to the number of limited hearing persons and their particular needs. Professional trainees under careful supervision should assist in the program.

Manually-oriented teachers for trade and technical courses should be provided if conjoint programs for large numbers of manual deaf are established at the training facility. Tutors and notetakers appear to be the most effective means of helping students attending the academic courses.

National and Regional Pools of Consultants

National and regional pools of consultants familiar with the problems of limited hearing adults attending existing educational facilities for the normally hearing should be made available to institutions wishing to establish such programs within their own facilities.

Data Collection

Careful collection of comprehensive data concerning the deaf and hard of hearing persons attending various programs in existing facilities for the normally hearing should be made by a central office. Such a procedure would provide reliable information concerning the most effective means of providing special training opportunities or formal educational programs for the vast populations of limited hearing persons.

Results of the Demonstration Project

The results of the Demonstration Project at Idaho State University in cooperation with the Vocational Rehabilitation Administration indicated that comprehensive supportive measures within existing educational facilities for the normally hearing provided an effective means of overcoming the waste of productivity caused by the failure of all types of deaf and hard of hearing populations to develop their potential abilities in the areas of communication, education, personal-social orientation, and vocational placement.

TABLE 44

COMPARATIVE COSTS OF EDUCATING LIMITED HEARING ADULTS

Comparative Costs	Gallaudet College (1965-1966)[1]	Idaho State University (1965-1966)[2]
	Cost to Student	
Regular Program	$ 900.00	$1,010.00
Supportive Program		$ 500.00--$2,000.00
Total	$ 900.00	$1,510.00--$3,010.00
	Cost to Institution	
Regular Program	$2,140.00	$2,000.00
Supportive Program		$ 500.00--$2,000.00
Total	$2,140.00	$2,500.00--$4,000.00

1 Nance, 1967
2 White, 1967

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APPENDIX A

Vocational-Technical Training Population Projection

In order for effective planning to take place, accurate estimates of the types of deaf students and the kinds of training they are suited to undertake will be needed. In the Survey by the Vocational Education Committee of the Conference of the Executives of the American Schools for the Deaf (1964), the following information was given:

> It is essential that we have accurate information on the numbers involved and the academic achievement level of the potential students of special vocational training centers.

COMBINED TOTALS

The 99 schools in all three classifications had an enrollment of 19,831. Seventy-seven replied representign an enrollment of 17,878 or 90.2% of the total enrolled.

LEAVING STUDENTS

The total number of leaving students from all 77 schools was 1,212, comprised of the following classification.

Academic Diplomas	Vocational Diplomas or Certif.	Attendance Certif. or Equivalent	Number Leaving Without Certif.
501	348	163	200

GRADE AVERAGE OF THOSE RECEIVING ACADEMIC DIPLOMAS
(Stanford Test Battery of Equivalent)

Residential School Graduates	Day School Graduate	Denominational & Private School Graduates
8.2	7.3	7.4

GRADE AVERAGE OF THOSE RECEIVING VOCATIONAL DIPLOMAS OR CERTIFICATES
(Stanford Test Battery or Equivalent)

5.3	none reported	5.0

NUMBER WITH 10th GRADE AVERAGE OR OVER

There were 70 students out of the total of 1,212 leaving students who had a Stanford, or equivalent average, of 10th grade or over 5.8% of the total.

Williams (1964) provided the following estimate of deaf populations for technical training and vocational training:

Estimate of Deaf Population for
Technical Training and Vocational Training

Technical Track

Age 18-25	1966	1967	1968
1st year trainees	400	400	400
2nd year trainees		200	200
3rd year trainees			100
Age 25 plus			
1st year trainees	100	100	100
2nd year trainees		50	50
3rd year trainees			25
	500	750	875

****

Vocational Track

Age 18-25			
1st year trainees	800	800	800
2nd year trainees		400	400
3rd year trainees			100
Age 25 plus			
1st year trainees	200	200	200
2nd year trainees		100	100
3rd year trainees			50
Total Vocational Track	1,000	1,500	1,650

The above estimates did not furnish a picture of the public school deaf, partially hearing, and hard of hearing populations. The post-vocational group, which needs re-training or additional training, should be studied for numbers and types of programs required.

Boatner (1964) reported the following information from his New England Survey regarding the deaf population:

> Ninety-two state supported trade and technical schools were sent questionnaires requesting information on any deaf students they may have had since 1957. Seventy schools responded, and gave the total number who had registered in this period as 22.
>
> Four are presently enrolled, 8 had graduated, 3 took non-credit evening courses and 7 left or were dismissed.

These 22 students do not represent a sampling but comprise the total number reported by the vocational and technical schools over a 7 year period as compared to the total number of 561 students who left the schools for the deaf during these years.

ESTIMATE OF ALL STUDENTS AGE SIXTEEN OR OVER LEAVING SCHOOLS ANNUALLY

Actual number who left 77 Residential Schools, Day Schools and Denominational and Private Schools Comprising 96% of total Enrollment of all Such Schools	1212
Calculated Number of Leaving Students From Residential, Day and Denominational and Private Schools not Replying	134
Estimated Number of Day Class Students Leaving Hearing Programs	300
TOTAL	1646

APPENDIX B

Social Problems of Graduates of an Oral Residential School for the Deaf

Wallace Bruce (1960) made a study of the social problems of graduates from an oral residential school for the deaf. He presented many aspects of the basic problems of social adjustment of the deaf.

> Regardless of personal opinions concerning the degree of social adjustment possible within the hearing community, teachers, parents, and the deaf themselves are aware of some basic problems that each deaf person must solve for himself.
>
> Dr. Ben M. Schowe, a deaf executive of the Firestone Tire and Rubber Company (1955), states:
>
> Every deaf person, it seems, is sorely tempted to withdraw wihin the limits of a tight little social group bound together by the ties of a convenient gesture language. It would be pleasant to confine ourselves to the social milieu in which communication is as free and untrammeled as if we suffered no hearing impairment whatever . . . . Sometimes I have discerned here and there in the social code and customs of the deaf, certain mores which seem to be the vestiges of an attempt to establish norms for a separate and insulated all-deaf culture.
>
> Schowe mentions that there is "an art" in knowing how to associate with hearing associates on favorable terms. The component of this art would be "the ability to establish mutually satisfactory relations between the deaf and their hearing fellows." [Fusfeld, 1954] It was suggested that this skill may be of even greater import than proficiency in a trade.
>
> An English educator [Gorman, 1954] who was born deaf comments on the problem of developing intelligible speech when surrounded by deaf companions in a residential school:
>
> Moreover, it is very possible that these special schools, with their concentration of deaf children segregated away from a normal environment, can, by the very nature of their administrative setup, reduce considerably the actual attainments of their pupils to speak and to lipread, though their potential capacity to do so may be very high.
>
> Lee Meyerson [Cruickshank, 1955] has described three general adjustment patterns available to the adult deaf:
>
> Pattern one. This pattern is characterized by a withdrawal to the small, limited, but protecting atmosphere provided by deaf clubs and societies for the hard of hearing. Meyerson believes

there is a rejection of and a rejection by the hearing world. He states that their major goals and aspirations are confined to areas in which they can compete favorably with the hearing community.

Pattern two. Deaf adults who assume this pattern reject the world of the hearing handicap and attempt an assimilation into the hearing community on an equal basis. They desire to participate in all activities without regard for their limitation of hearing.

Pattern three. Meyerson perceives this adjustment pattern as being one of evaluating the large areas where the normally hearing and the hearing handicapped may participate and entering into these areas eagerly and without fear. Activities are enjoyed with hearing people, oral and non-oral deaf people, and the hard of hearing. Special areas that require hearing for participation are rejected. These deaf adults do not attend them or aspire to them just to be considered as "normal."

The importance of the mutual adjustment of the deaf and normally hearing is highlighted by the above material which was quoted from Bruce's study.

APPENDIX C

Programs in Which Deaf are Integrated with Normally Hearing

Institute for Research on Exceptional Children

A study carried out by Stephen Quigley (1967) reported the following information:

> Of more than 1,000 contacts, 658 usable questionnaires were returned. These are being analyzed in terms of degree of deafness, age at which hearing loss occurred, and degree of success at an institution of higher learning for the normally hearing.
>
> The extensive questionnaire includes items on the Socio-economic status of the respondent's family of origin, the type of primary and secondary education received, as well as description variables on how information was gotten in class, subjects studied, and amount of participation by the respondent in school activities.
>
> There is also a section of opinion variables which explore the types of behavior the respondents feel will be most advantageous to the deaf or HOH student as well as steps the schools can take to improve the chances of success for the hearing impeded student.
>
> A very preliminary analysis of the data shows that of the 658 respondents, 50.6% had received at least one degree from an insitution of higher education for the normally hearing, 25.8% were in attendance at the time the questinnaire was returned, and 23.6% had never received a degree from such an institution and were not in attendance at the time.
>
> Another analysis showed that 455 respondents or 69% were severely or profoundly deaf by 17 years of age, or prior to the time they would normally enter college.

It will be interesting to note what sort of supportive measures were provided these students. It would appear that many of these students had well established speech and language skills similar to those in Group C of the Idaho Project.

H. Latham Breunig (1965) stated that "it would further seem that in order to compete with the hearing on their own ground, young deaf men and women must seriously consider the advantages to be gained in preparing for this competition through attendance in schools and colleges with the hearing."

Many of the studies of the success of the deaf have, perforce, been made by questionnaires. Some programs, however, have offered integrated services during which time more exacting studies could be made of the abilities and disabilities of the students.

Riverside City College

Clifford Mohan, Coordinator for the Deaf (1966), and Vernon Davis are working with the Riverside City College Program for the Deaf. The program was originated by Mr. Mohan and Mr. Arthur Washburn.

> The R.C.C. Program for the Deaf began in September, 1961, and to date seventy-two students have received assistance to varying degrees. These students are graduates of programs for the deaf in California residential schools and public high schools. Goals here at R.C.C. are primarily vocational in nature, however secondary goals would certainly include those elements which promote good citizenship - a better understanding of how to function in "hearing" world and acceptance of individual responsibility for one's own contributions to society.
>
> Specific vocational goals have included Graphic Arts, Drafting, Vocational Nursing, Cosmetology, Commerical Art, Business, and Automotive Mechanics. As the vocational areas of the college expand, we hope to enlarge our program. Related work in order to earn an Associate in Arts degree include a minimum of two years of English, a year of American History, and semester courses in General Science, Health, and at least one course in Mathematics.
>
> The program is designed to meet the needs of the deaf student who is more severely deafened and whose language development has been impaired as a result. Special classes in English and History, which are definitely language oriented, are taught by trained teachers of the deaf using a combined method of instruction. (These teachers also act as counsellors and coordinators.) In all other classes needed, provision is made for an interpreter or a note taker (the latter is usually a fellow hearing classmate) to take notes and relay explanations of the teacher to the deaf student.
>
> The Department of Vocational Rehabilitation operating on regular state funds maintains a case file on every student, pays for most of the student fees, note taking and interpreter service, and in individual cases which may qualify assists with other expenses such as maintenance, travel, and/or school supplies. After termination of training, DVR also will assist in job placement and/or counselling whenever and wherever possible.
>
> The deaf students are well accepted by the hearing students - scores of whom have made the effort to learn to communicate manually with those of our students who are less proficient in lipreading and speech. Some of them have joined local fraternities and sororities. Integration has been particularly effortless in the Physical Education classes (several students have participated in varsity sports) and student social activities both on and off campus.
>
> We are pleased to observe that, in general, there are marked evidences of maturation in our second year students as compared to the beginners. The consensus of those having contact with the program is that it not only serves as an effective intermediate step between special school and competition on the "open

> market: but it also serves as an excellent tool for developing an awareness and an understanding of the problems of the deaf on the part of the general public.
>
> We do not have adequate follow-up records as to job placement but in most of the instances about which we do have information we find that the students are following pursuits in or allied to the training they have received.

Clark Junior College

Lewis and Clark Junior College has collaborated with the Washington State School for the Deaf in providing post-secondary-level education. Virgil W. Epperson, Superintendent (1966), writes about this program:

> From time to time some of our students have attended Clark Junior College as vocational students and they have taken such courses as printing, body and fender work, and welding.
>
> We had a very few young people who entered colleges for the hearing, but they could not be considered an average deaf person, as the average deaf student could not carry an academic course in a college for the hearing and certainly not without interpretation provided in sign language. We have had quite a few deaf members of the faculty taking graduate work in colleges such as Lewis and Clark College of Portland, Oregon, Portland University, and others, with interpretation being provided and courses taught by some of our own faculty under an affiliation with the College.
>
> The regular students of our school, however, have not taken academic courses in colleges while staying here at school, but all the work has been vocational in nature. We have had some girls taking business college work in Vancouver business schools while students here, as well as boys enrolled in vocational courses at Clark Junior College.
>
> I assume that you are concerned with vocational courses rather than academic, so I would also advise that we have usually found it necessary to teach the vocabulary of the course here at our school, even though the young person may be studying a vocation at Clark College or in a business school.
>
> We have found such arrangement satisfactory and the costs have been paid by Vocational Rehabilitation. Just now we are not involved in such a program as we have expanded our vocational program here. If the need arises, we shall send some of our students out to other programs, however, while they are here on our campus and will make arrangements to teach vocabulary and language of the trade where necessary.

Northern Illinois University

A residential vocational rehabilitation program for youngadults with severely impaired hearing was initiated by Jerome G. Alpiner and Richard A.

Walker. A bulletin (1965) from Northern Illinois University describes the program.

> The Illinois Vocational Rehabilitation Program at Northern Illinois University is designed to help speech and hearing handicapped young adults arrive at a realistic vocational choice, provide necessary speech and hearing therapy and provide some prediction of future vocational success. The program offers these persons, rehabilitation with a residential vocational, social and educational independence. The services provided by the program include diagnosis, speech and hearing therapy, academic training, vocational exploration and guidance. Additionally, the program provides clinical experience for graduate students in speech and hearing rehabilitation via an interdisciplinary approach. Training of these graduage students includes coursework and clinical experiences in language pathology, speech and hearing, counseling and guidance.

Jewish Vocational Workshop

Sidney N. Hurwitz (1964) described the use of a community center for a comprehensive workshop facility:

> The project outlined above considers three aspects of its program as specially relevant for successful rehabilitative efforts:
>
> 1. Continuity of programming. This is afforded through provision of an integrated program which carries the client from the point of intake to completion of service.
> 2. Reality orientation. Essentially this emphasizes and educational approach aimed at providing clients with a progression of reality problems of increasing complexity. Each segment of program is introduced through demonstrable realities, attempts to minimize abstractions and overly subjective reactions.
> 3. Socialization training. All Counseling and environmental aids that may further client's social functioning are employed including training in self-help, provision of a supportive residence setting, counseling with key adults in client's life, operation of a social club type program, and soon. (Harry Kaufer, Director)
>
> Our deaf clientele will be primarily people between 20 and 30 years of age who are academically seriously retarded, who have no useable vocational skills, who are very lacking in communication skills, and whose personalities manifest all those problems one would anticipate by virtue of their handicaps.

New England Rehabilitation-For-Work Center

Gordon B. Connor (1966), Director of the New England Rehabilitation-for-Work Center provided the description of their program:

> The purpose of the Project is the development of services to meet effectively the vocational rehabilitation needs of deaf

> adults through a program of total assessment, training, placement and follow-up, coordinated with existing public and voluntary resources. The population to be served will be "those in whom the sense of hearing is non-functional for the ordinary purposes of life." Specialized professional personnel with communication skills, in social work, in psychology, and in vocational rehabilitation counseling will staff the Project . . . . It promises to contribute significantly to the understanding and amelioration of the rehabilitation problems of a severely disabled group whom, heretofore, have been denied services avilable to the great majority of the handicapped because of the language-communication barrier and resultant social deficiencies.

t Springs Rehabilitation Center

Some of the services being offered at the Hot Springs Rehabilitation nter are described by Gary D. Blake in a Brief published by Arkansas Rehalitation Service (1964):

1. Vocational training in a job-like situation to prepare for employment in the competitive labor markets.
2. Evaluation of vocational skill, potential, attitudes and information necessary for employment success and independent living.
3. Personal adjustment counseling, social and personal guidance, and integrated interpersonal experiences aimed at preparation for independent community living.
4. Speech evaluation for the purpose of encouraging use of speech. Speech and speech reading training are available, but only if related to, and necessary for, employment.
5. Dormitory supervision which allows a great deal of freedom.
6. Recreational facilities and an organized recreational program.
7. Special education when requested by the vocational instructor because a student's lack of academic knowledge or achievement retards vocational instruction.
8. Medical treatment, supervision and consultation.

The following services are also available to deaf rehabilitation ients:

1. Occupational therapy.
2. Physical therapy, prosthetic and orthotic services.

operative Program of Adult Education Classes: Los Angeles

A report on the Adult Education Classes was given by Tom Dillon (1964) a part of the Leadership Training Program in the Area of the Deaf at San

Fernando Valley State College under the direction of Dr. Ray L. Jones:

> From its inception in 1963, the success of the Adult Education Program for the Deaf may be attributed to a number of factors. First and most prominent is the fact that the idea of adult education classes originated with the deaf people of Los Angeles and has since had the full support of their various organizations and the California Association of the Deaf. The cooperation of San Fernando Valley State College in providing free use of its facilities, equipment, and the valuable counseling and assistance from its staff and faculty had no small part in contributing to the success of the 1964 program. The experience, guidance, and support of the Adult Education Division of the Los Angeles City Schools and of the Reseda Adult School provided the framework around which we were able to build our program. The counsel and assistance of other agencies including the Vocational Rehabilitation Service and the California Association of Parents of Deaf and Hard of Hearing Children was most valuable in developing this program.

Although the above program is not integrated with normally hearing students, it is an example of the type of opportunity which should be given deaf adults and described what agencies can be of help in developing such a program.

Wichita Social Services for the Deaf

A philosophy basic to integration of the deaf, hard of hearing, and normally hearing programs is expressed by Roger M. Falberg in a series of articles in the Silent Worker. In one of the articles he says:

> Those who are interested in the establishment of a community service agency for the deaf in metropolitan areas should not be too quick to assume that such an agency would benefit the deaf alone. True, counseling and casework with the deaf client is always the major goal; but, in pursuing this objective the agency will find that as a "fringe benefit" it is serving the community at large in many ways.

New Jersey Rehabilitation Commission and New Jersey School for the Deaf

State Director of the New Jersey Rehabilitation Commission wrote concerning the approach used by the vocational counselor to ameliorate some of the difficulties faced by their clients. Miss Beatrice Holderman (1966) stated:

> Since 1962 the New Jersey Rehabilitation Commission and the New Jersey School for the Deaf have worked cooperatively on a project basis to help this disability group. It had long been our feeling that this disability group required special attention in order to effect satisfactory adjustments in line with their abilities. As you know, because of the nature of the disability, there have been times when the deaf have not been rehabilitated in employment commensurate with their maximum potential.

> In our cooperative projects with the School for the Deaf, the first project involved assignment of a rehabilitation counselor to the school to work with deaf students. At the expiration of this project, the counselor continued essentially with the same disability group but paid special attention to students with emotional disabilities. Based on the experience gained through the above projects in July, 1965, another project was developed which provides for a consultant-coordinator and 2 rehabilitation counselors. The consultant-coordinator also functions in a consultative capacity to our rehabilitation counselors throughout the state whenever they need advice in serving deaf clients.

Cincinnati Central High School

Miss Dolores I. Miles (May, 1965) prepared a statement concerning the preparation of students who are deaf and hard of hearing at the Central High School in Cincinnati:

> Central High School provides an educational program for young people which contributes to the individual and to society. To accomplish these purposes Central High School offers three instructional programs to its pupils:
>
>> A terminal program which is designed for pupils who, for one reason or another, will probably leave school before completing the usual four-year course.
>>
>> A four-year vocational program which is designed for pupils who want an introduction to, and an elementary competency in, the skills of a vocational field of their choice.
>>
>> A four-year technical program which is designed for pupils who wish to prepare themselves for employment as technicians or for advanced study at technical institutes, colleges, and universities . . . .
>
> The co-ordinators work with the pupils, the shop teachers, the employers of students on co-operative job placement, and with the business men in the various industries of the city in trying to secure placement for the students in the various trade, industrial, and technical programs.
>
> The modern well equipped school, shops, laboratories and special class, as well as the well qualified instructors afford the proper physical facilities and guidance necessary for a successful school experience for the deaf and hard of hearing students, but there are also other factors of utmost importance. These other factors depend upon the student himself. Some of these necessary qualities, abilities, skills, habits, or techniques are: general good mental and physical health, mental ability, educational background, good work habits, conscientious study discipline, adequate reading ability, adequate comprehension of straight language as well as the ability to reproduce it and understandable speech.

A deaf or hard of hearing pupil has the opportunity to obtain the necessary education for acquiring a saleable skill at Central High School, because the philosophy of Central is based on the theory that all children are entitled to an education which would best meet his individual needs.

Seattle Public Schools

Integrated programs in Seattle, Washington express the philosophy which is also appropriate at the post-secondary level. Donald Thomas (1964) says:

> Our philosophy is based on the assumption, accepted by many educators of the deaf, that the acoustically handicapped child can free himself more easily from the handicapping inimical to a sound-distorted environment if he has the background of experiences encountered in normal society, but not found in an isolated one.

Minnesota State Department of Education

The conclusions reached in a preliminary investigation of the adolescent and young adult hearing impaired (1964) are the following:

1. The improvement of the broad education of the adolescent and young adult hearing impaired is a statewide problem demanding an immediate cooperative, multi-agency and multi-disciplinary attack.

2. A mechanism should be set up, formalizing interchange among agencies and groups, to coordinate, to carry on and to initiate research and to study and plan for action relating to school and post-school hearing impaired young adults.

3. Priorities were suggested for research activities.

4. Some immediate and projected action was suggested to improve the educational environment of the adolescent and young adult hearing impaired in Minnesota.

FRONT COVER

—the incredulous whisper of——

WORLD I HEAR YOU

The moment in the life of a deafened person when he hears for the first time the beautiful sounds of the world about him:
—to capture this moment for you a blanket has been used as a symbol of the heavy covering that comes between the deaf and the life around them, a covering that muffles communication, hides the brightness of their minds, and weighs upon their spirits;
—lifting this load from their souls reveals the hidden strength and releases the energies that lie beneath, powers unknown to others and often to themselves:
—those who are dedicated to helping lift the blanketing weight of silence from mankind are also listening to a silent world whose appeals are seldom heard saying WORLD I HEAR YOU.

. . . . Elnora Cheney

Photography by Lloyd Furness, Idaho State University
Diagrams by Shurl Lowder, Pocatello, Idaho
Drawings by Elnora Cheney, Idaho Falls, Idaho
*Back of cover, SUPPLICATION, original sculpture given to Mr. Crayton Walker, former executive director of the American Hearing Society, by Miss Elnora Cheney, student participant in the Project.